INSTALLATION INSTRUCTIONS

Autopilot Kit

MODELS

Case IH
MX210
MX230
MX255
MX285

Note: This kit is to be installed by a Trimble-trained technician only.

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TABLE OF CONTENTS

SAFETY / MACHINE PREPARATION INFORMATION 3
- Personal Protection 3
- Machine Cleaning 3
- Pre-Installation Machine Preparation 3

MANUAL SYSTEM UPGRADE TO AUTOPILOT 4
- Ag110 EZ-Guide System 4
- EZ-Guide SL Ag114 Manual Guide System 4
- Ag124 or Ag132 PSO System 4

REQUIRED COMPONENTS 4
- Kits Required 4
- Special Tools Required 4

AUTOPILOT HARDWARE ORGANIZATION - AS SHIPPED 5

AUTOPILOT HARDWARE ORGANIZATION - AS INSTALLED 5

HYDRAULIC CONTROL VALVE INSTALLATION 6
- P.I.N. JAZ126070 AND AFTER (SNAP-TITE FITTINGS) 6
- PRIOR TO P.I.N. JAZ126070 (FACE SEAL FITTINGS) 7

ANGLE SENSOR INSTALLATION 19

ANTENNA/RECEIVER INSTALLATIONS 24
- AgGPS 114 or AgGPS 132 24
- AgGPS 252 Receiver and RTK Radio (If Equipped) 27

DISPLAY INSTALLATION 32
- AgGPS 21A Lightbar Display 32
- AgGPS 170 Display 32

DISPLAY CONNECTIONS 34
- AgGPS 21A Lightbar Only System Cable Layout 34
- AgGPS170 Display System Cable Layout 35

POWER HARNESS INSTALLATION 36

REVERSE/WHEEL SPEED HARNESS INSTALLATION 40

CONTROLLER INSTALLATION 43

SAFETY / MACHINE PREPARATION INFORMATION

Personal Protection

- Always wear protective glasses, shoes and any other protective equipment as required by job conditions and machine.
- Wear protective glasses when using pressurized air or water to clean surfaces or cleaning overhead surfaces.
- Use proper protective welders clothing if a welding operation is to be done.
- Do not wear loose clothing or jewelry that can catch on machine parts or tools.
- Use steps and handrails when entering or exiting a machine while facing the machine.
- Use caution when checking for hydraulic leaks and system operation. Do not use bare hands to check for leaks. Pinhole leaks can result in a high velocity fluid stream that can penetrate the skin and cause serious injury. Stand clear and use a board or cardboard to check for leaks.
- Battery posts, terminals and related accessories contain lead and lead compounds. Wash hands after handling.

Machine Cleaning

- If the machine has been used to apply agricultural chemicals, the machine must be steam cleaned to remove any chemical residue from the areas where the technician will be installing brackets, making hydraulic connections or routing cables and hoses.
- The technician must wash hands prior to eating or drinking after working on the machine.
- Remove all dirt and debris from the areas of the machine where the Autopilot system will be installed.

Pre-Installation Machine Preparation

- Park the machine on a level, hard surface. Block the front and rear wheels.
- Align the steering straight ahead. On articulated machines, install the articulation locks.
- Lower all attachments to the ground.
- To avoid burns, allow hot machines to cool before attempting installation.
- Relieve all pressure in oil, air and water systems before disconnecting any lines, fittings or related items.
- Be careful when removing fill caps, breathers and hose connections. Hold a rag over the cap or fitting to prevent being sprayed by liquids that may still be under pressure.
- Before starting to disconnect hydraulic and electrical components, disconnect the battery cables and attach a “Do Not Operate” or similar tag in the operator’s cab. A lockout box should also be installed on the battery terminal to avoid the battery from being reconnected.
- Remove the key from the ignition switch.

NOTE: *Before beginning installation, read through these instructions to familiarize yourself with the installation procedure.*

NOTE: *The left and right sides of the machine are referenced while standing behind the unit, facing the normal direction of travel.*

NOTE: *Open all kit boxes and check contents of box against packing list/s. Lay all parts out on a clean work bench.*

MANUAL SYSTEM UPGRADE TO AUTOPILOT

Ag110 EZ-Guide System

RETAIN - AgGPS 21A Lightbar

AgGPS 110 Antenna/Receiver

REMOVE - Lightbar Cable 35204 (NOTE: Replace with Cable 46996 from conversion kit.)

AgGPS 110 Receiver Cable 40947-18 (NOTE: Replace with Cable 47045 from conversion kit. Extension Cable 49435 available as accessory.)

Remote Keypad (Replace with Autopilot keypad from kit.)

Sonalert (NOTE: Replace with Sonalert and cable from kit.)

EZ-Guide SL Ag114 Manual Guide System

RETAIN - AgGPS 21A Lightbar

AgGPS 114 Antenna/Receiver

REMOVE - Lightbar Cable 35204 (NOTE: Replace with Cable 46996 from conversion kit.)

AgGPS 114 Receiver Cable 40947 (NOTE: Replace with Cable 47045 from conversion kit. Extension Cable 49435 available as accessory.)

Remote Keypad (Replace with Autopilot keypad from kit.)

Ag124 or Ag132 PSO System

RETAIN - AgGPS 21A Lightbar

Antenna for AgGPS 124 or 132 Receiver

AgGPS 124 or 132 Receiver

Antenna to Receiver Cable

REMOVE - Lightbar to Receiver Cable (NOTE: Replace with Cable 46996 from conversion kit.)

Remote Keypad (Replace with Autopilot keypad from kit.)

REQUIRED COMPONENTS

Kits Required

40394-25 Platform Kit

53289 Hydraulic Hose Kit

53676 Roof Bracket Kit

Special Tools Required

5/16 inch drill bit

Allen wrench set, metric and inch sizes

AUTOPILOT HARDWARE ORGANIZATION - AS SHIPPED

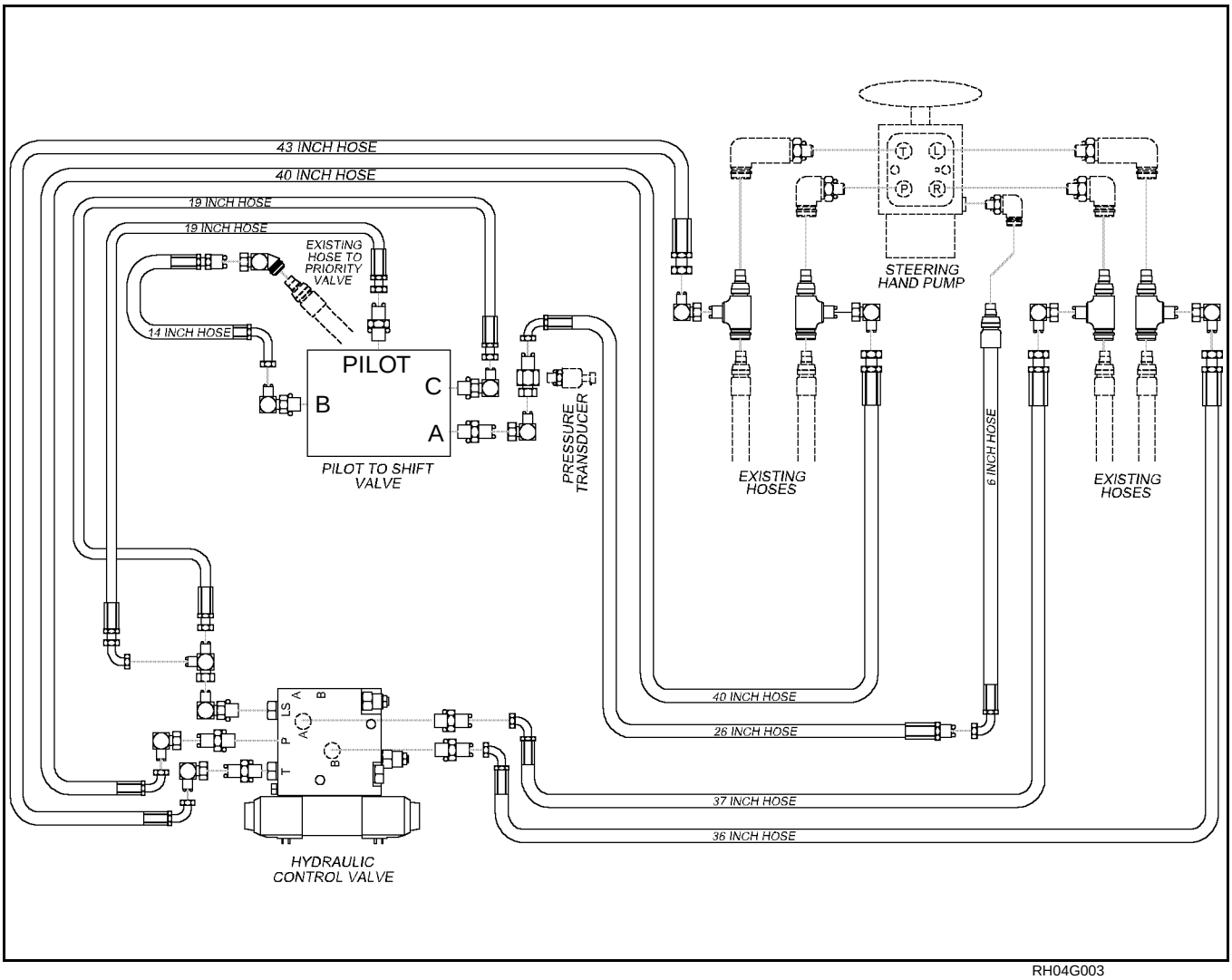
Platform Kit 40394-25	Common Parts	GPS Receiver	Display	Hyd. Hose Kit 53289	Roof Bracket Kit 53676
(1) Hydraulic Valve (1) Hydraulic Manifold (1) Transducer, Flow Switch (1) Manifold Mounting Bracket (1) Hydraulics/Steering Angle Cable (1) Bolt Kit - Hydraulics (2) Steering Angle Sensor, Mounting Brackets, and Hardware (5) Reverse/Neutral Cable (5) Power Cable (6) Controller Bracket (6) Bolt Kit, Controller (4) Lightbar Mounting Bracket	(6) Controller (6) Controller Mounting Plate (5) Sonalert Alarm (5) Cable Kit • NC to RDL/BB/LB • Data Cable for Computer • NC to Display • Breakout Cable • Electrical Accessory Kit	(3) GPS Receiver (3) GPS Antenna (3) GPS Receiver Mounting Bracket (3) GPS Receiver Power/Data Cable (3) RTK Radio, Cable and Mounting Bracket Kit (Supplied Separately)	(4) Lightbar (4) AgGPS 170 (4) Button Box (4) AgGPS 170 Cable (4) AgGPS 170 Mounting Bracket	(1) Hyd. Hoses (1) Hyd. Adapters	(3) Roof Brackets (3) Bolt Kit, Roof Bracket

AUTOPILOT HARDWARE ORGANIZATION - AS INSTALLED

Hydraulics (1)	Steering Sensor (2)	GPS Receiver (3)	Display (4)	Sensor/Power (5)	Controller (6)
• Hydraulic Valve, Manifold, Flow Switch, Manifold Mounting Bracket • Hydraulics/ Steering Angle Cable	• Steering Angle Sensor Assembly, Mounting Brackets, and Hardware	• GPS Receiver • GPS Antenna • GPS Receiver Mounting Bracket • GPS Receiver Power/Data Cable • Roof Brackets	• Lightbar • AgGPS 170 • Button Box • Lightbar Cable • AgGPS 170 Cable • Lightbar Mounting Bracket	• Reverse/Neutral Cable • Power Cable • Electrical Accessory Kit	• Controller, Controller Mounting Plate • Controller Bracket • Bolt Kit - Controller

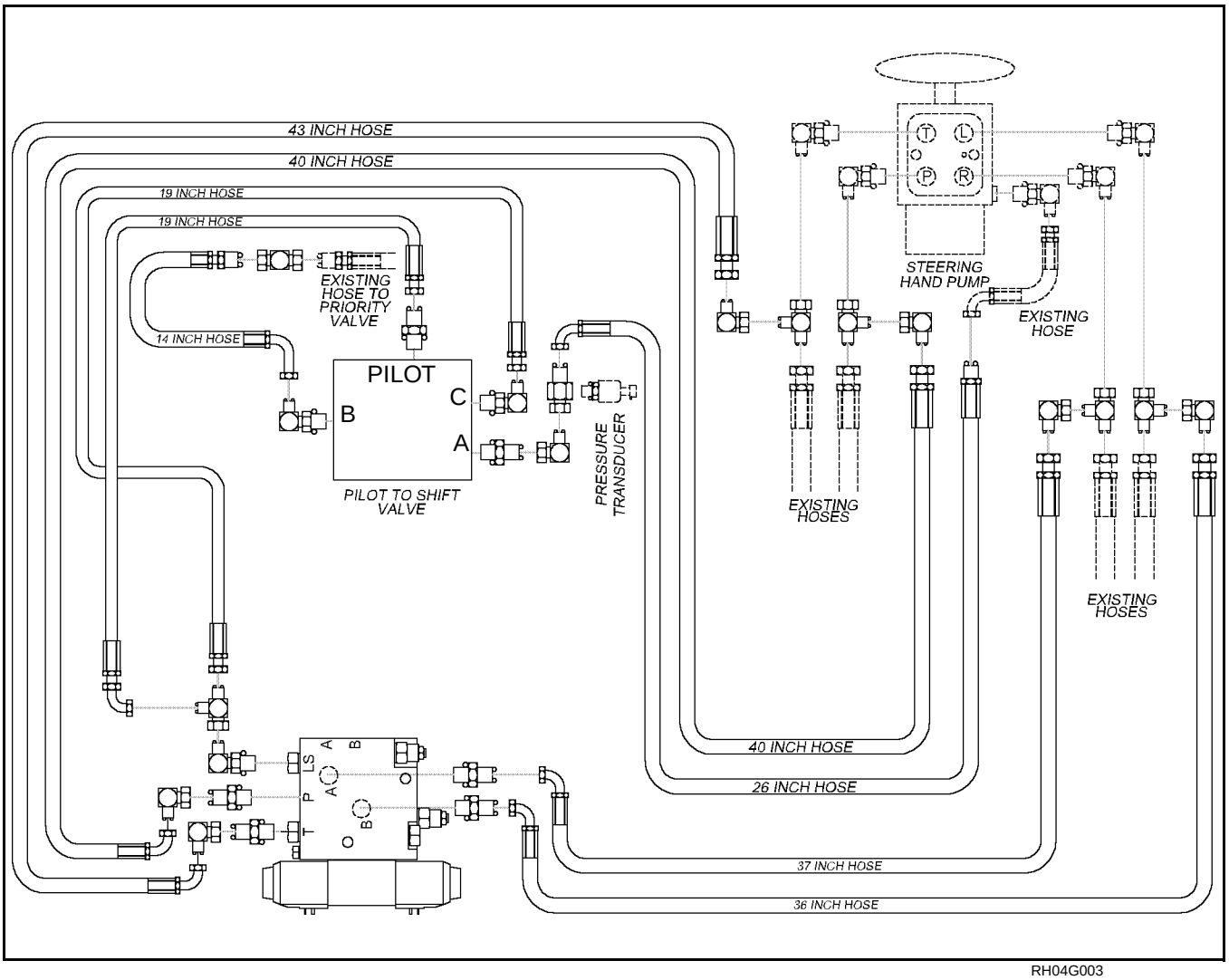
HYDRAULIC CONTROL VALVE INSTALLATION

P.I.N. JAZ126070 AND AFTER (SNAP-TITE FITTINGS)



HYDRAULIC OVERVIEW

PRIOR TO P.I.N. JAZ126070 (FACE SEAL FITTINGS)



HYDRAULIC OVERVIEW

STEP 1

Place the hydraulic control valve, bracket and fittings onto a clean work surface.

RD04K054

STEP 2

Place the valve assembly onto a clean work surface. Remove the cartridge plug from right side of valve as shown.

RD04K056

STEP 3

Replace it with the shorter plug assembly XEOA XXN supplied with the kit.

RD04K057

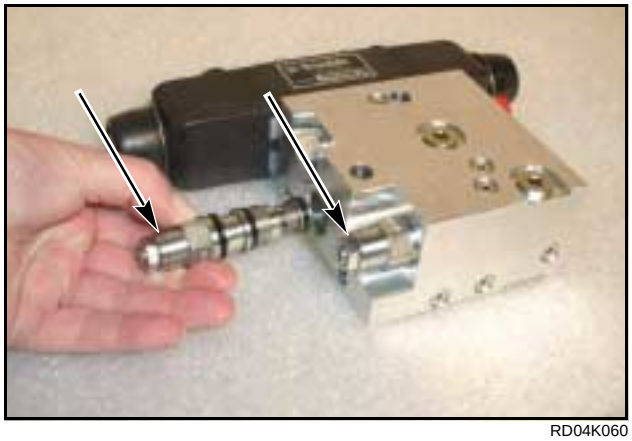
STEP 4

Remove the cartridge plug from left side of valve as shown. Replace it with shorter plug assembly XFOA XXN supplied with the kit.

RD04K056

STEP 5

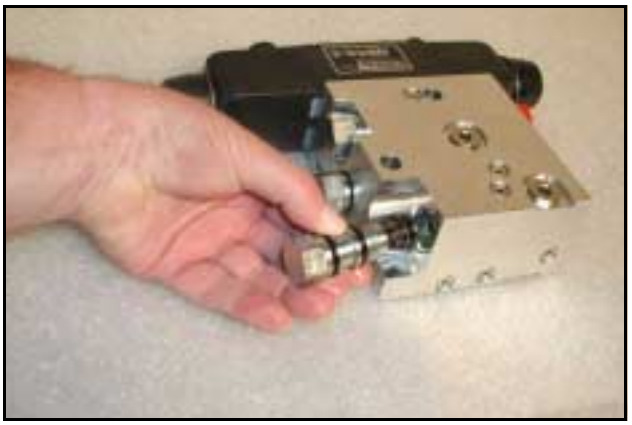
Remove both the adjustable cartridge valves from left side of valve as shown.



RD04K060

STEP 6

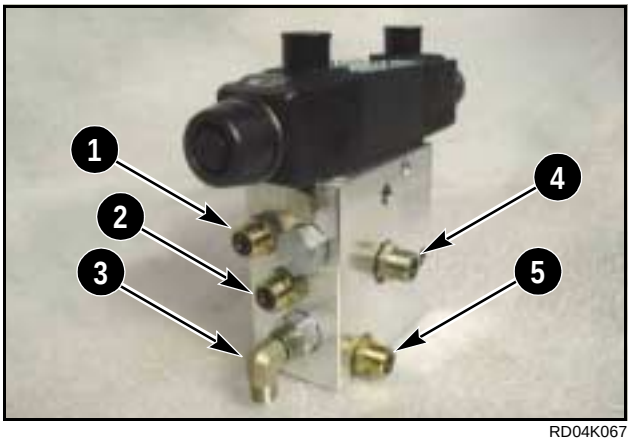
Replace them with the two non-adjustable cartridges CKCB XAN supplied with the kit.



RD04K063

STEP 7

Install a -6 straight connector into “T”, “P”, “A” and “B” ports. Install the -4, 90 degree elbow with jam nut into “LS” port. Tighten the jam nut so that the elbow points straight down as shown. Tighten the straight connectors into the valve body. Make sure the flat face sealing O-rings are in place.



RD04K067

1. “T” TANK PORT
2. “P” PRESSURE PORT
3. “LS” LOAD SENSE PORT
4. “B” PORT
5. “A” PORT

STEP 8

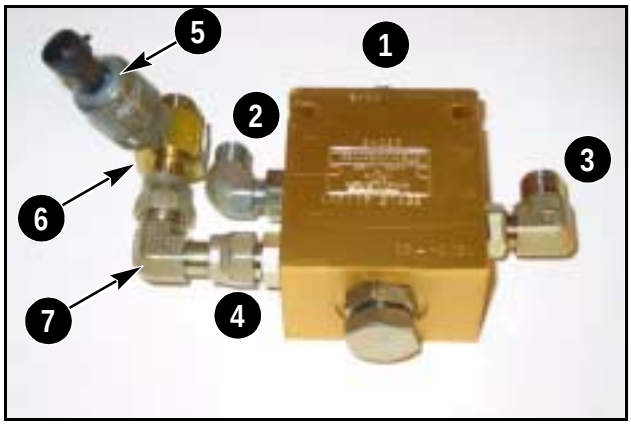
Install the hydraulic valve assembly onto the mounting bracket with the 3/8 inch hardware supplied in kit.

RD04K068

STEP 9

Install a -6-4 straight connector into port marked “PILOT” and install a -6-6 straight connector into port “A” of the pilot to shift valve. Install the -6-4, 90 degree elbow with jam nuts into ports “C”. Install the -6, 90 degree elbow into port “B”. Tighten the jam nut so that the elbows point up as shown.

Install the transducer into swivel adapter. Connect swivel adapter to 90 degree elbow and connect elbow as shown at port “A”. Tighten fittings in position as shown.



RD04K166

1. PORT “PILOT”
2. PORT “C”
3. PORT “B”
4. PORT “A”
5. TRANSDUCER
6. SWIVEL ADAPTER
7. 90 DEGREE ELBOW

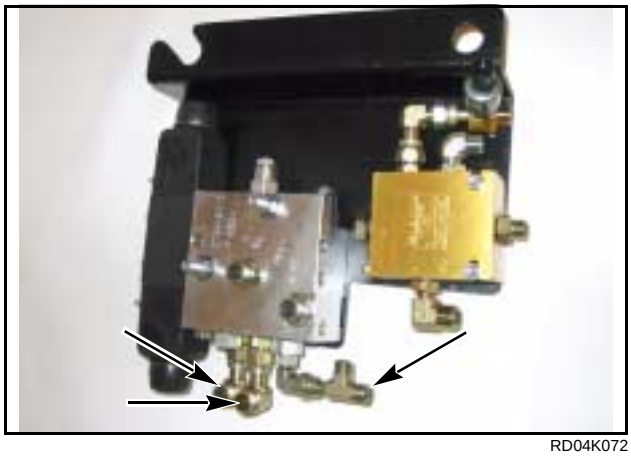
STEP 10

Install the pilot to shift valve assembly onto the mounting bracket with the 1/4 inch hardware supplied in kit.

RD04K167

STEP 11

Install a -6, 90 degree elbow at both “T” port and “P” port. Position the elbows as shown and tighten the swivel nuts. Install the -4 run tee onto the 90 degree elbow at “LS” port. Tighten the run tee into the position shown.



RD04K072

STEP 12

Install the one end of the 19 inch long -4 hose to the run tee at port “LS” on control valve. Connect the opposite end of the hose to port “C” on the pilot to shift valve.

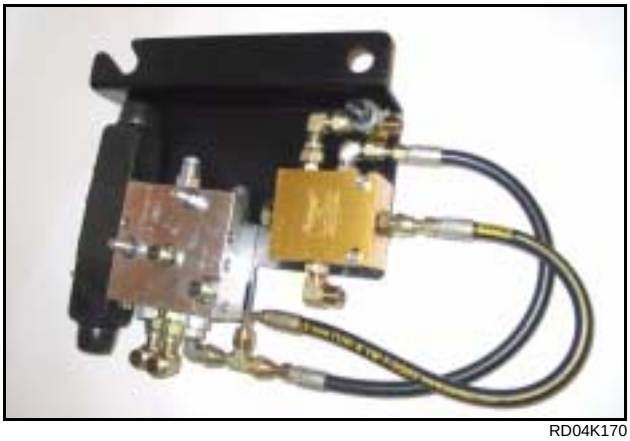
Tighten both ends of the hose assembly.

RD04K169

STEP 13

Install the 90 degree end of the 19 inch long -4 hose to the branch tee at port “LS” on control valve. Connect the open straight end of the hose to port “PILOT” on the pilot to shift valve.

Tighten both ends of the hose assembly.



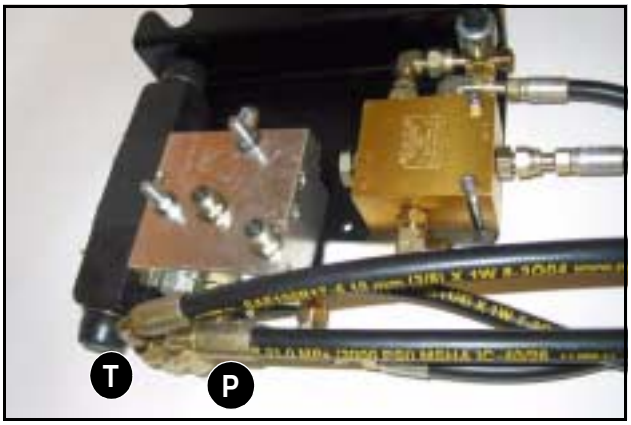
RD04K170

STEP 14

Install the 90 degree end of the 40 inch long hose to “P” port elbow on hydraulic control valve. Install the 90 degree end of the 43 inch long hose to “T” port elbow on hydraulic control valve.

Tighten both swivel nut ends in position as shown.

Tag opposite end of each hose “P” and “T” for later identification.



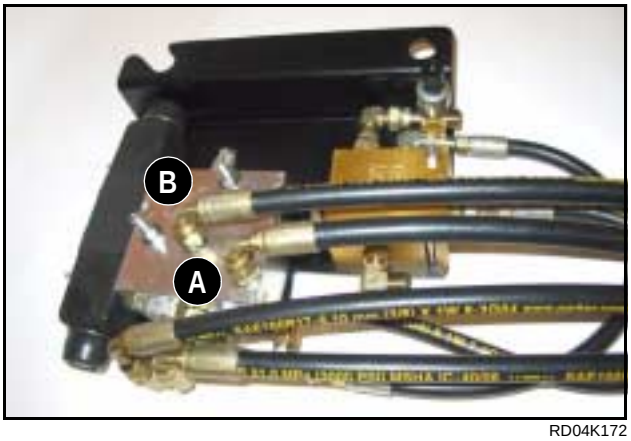
RD04K171

STEP 15

Install the 90 degree end of the 37 inch long hose to “A” port on hydraulic control valve. Install the 90 degree end of the 36 inch long hose to “B” port on hydraulic control valve.

Tighten both swivel nut ends in position as shown.

Tag opposite end of each hose “A” and “B” for later identification.

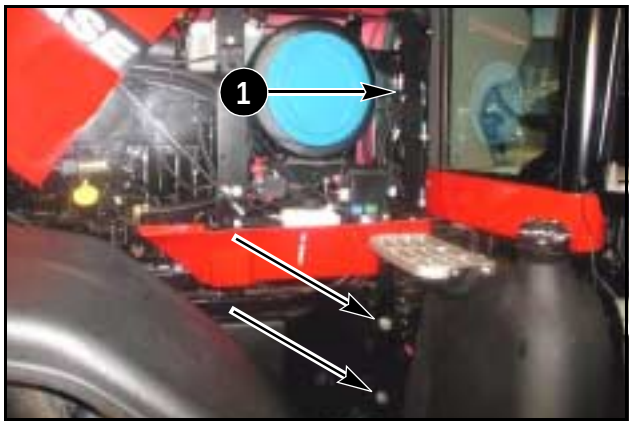


RD04K172

STEP 16

The hydraulic valve assembly will be mounted on left side of tractor. If the tractor is equipped with a front window step remove the top bolt and loosen the lower bolt. Otherwise use the M20 bolts and spacers supplied in kit.

Remove the hood side panel door. Remove the air cleaner cover. The steering hand pump (1) is just to the right of air cleaner.



RD04H177

1. STEERING HAND PUMP

STEP 17

Install the hydraulic control valve assembly onto the tractor. Tighten the bolts which secure the valve assembly to frame.

RD04K077

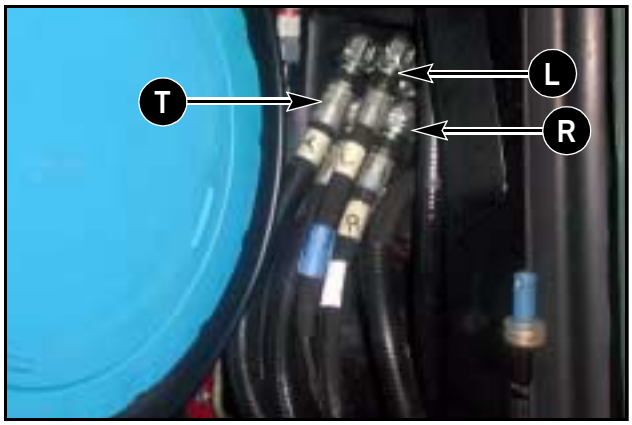
STEP 18

Carefully route the “T”, “P”, “A” and “B” hose ends up toward the steering hand pump.

RD04K078

STEP 19

Identify and tag all the steering hand pump hose connections.



RD04H199

STEP 20

NOTE: *Prior to Serial Number JAZ126070 flat face hydraulic fittings were used at the steering hand pump. Substitute the flat faced tee fittings supplied in kit as needed.*

Use the larger “Snap to Connect” tool supplied with the kit to disconnect the hose assemblies.

The smaller “Snap to Connect” tool will need to be bent as shown for disconnecting the load sense connection.

RD04H208

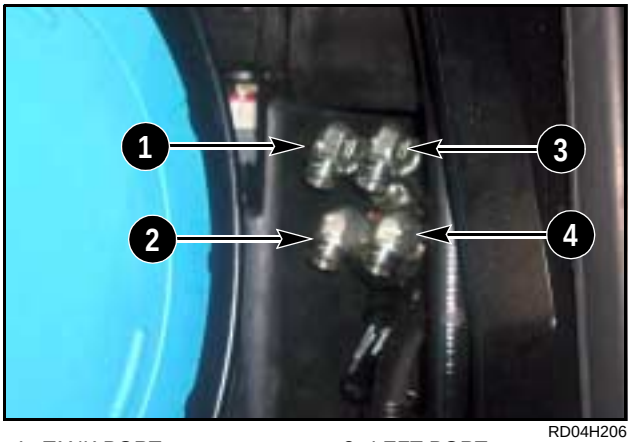
STEP 21

Use the “Snap to Connect” tool to disconnect all the hose assemblies at steering hand pump.

RD04H205

STEP 22

Mark each fitting on the steering hand pump.



RD04H206

1. TANK PORT
2. PRESSURE PORT
3. LEFT PORT
4. RIGHT PORT

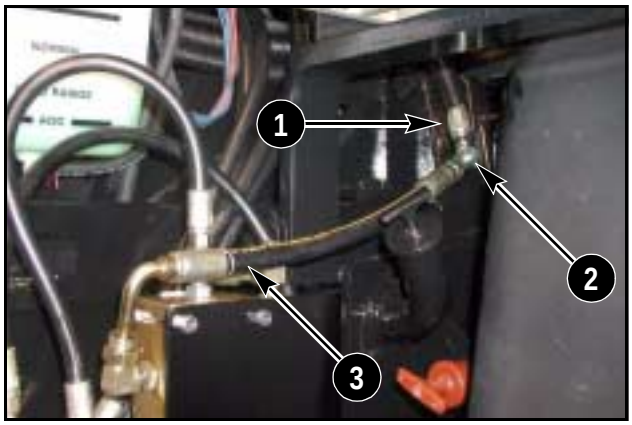
STEP 23

Route the “Snap to Connect” hose (1) disconnected from the load sense port of steering hand pump out toward valve assembly.

Install the 45 degree “Snap to Connect” adapter (2) onto straight hose end. Install the 90 degree of 14 inch hose assembly from adapter to port “B” on pilot to shift valve.

NOTE: *Prior to Serial Number JAZ126070 substitute flat face swivel adapter for item 2.*

Tighten the hose connections.



RD04K080

1. “SNAP TO CONNECT” HOSE
2. 45 DEGREE “SNAP TO CONNECT” ADAPTER
3. HOSE ASSEMBLY 14 INCH

STEP 24

Install the 6 inch “Snap to Connect” connector hose at the steering hand pump load sense port.

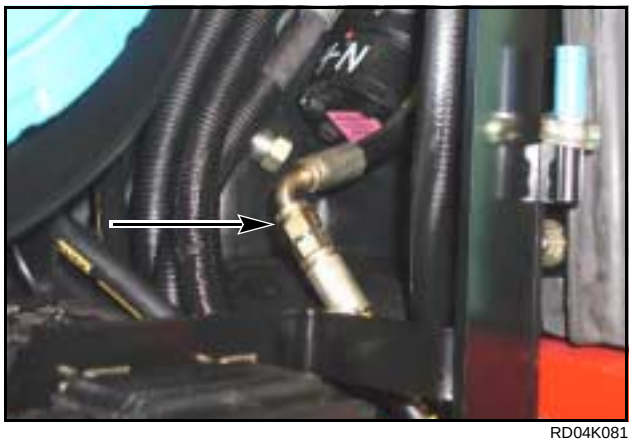
NOTE: *Prior to Serial Number JAZ126070 use the existing hose at steering hand pump load sense port.*

RD04H210

STEP 25

Select the 26 inch hose assembly from kit and route the straight end to steering hand pump. Connect the hose end to the 6 inch “Snap to Connect” hose at the steering hand pump load sense port.

NOTE: *Prior to Serial Number JAZ126070 connect the 26 inch hose assembly to the existing hose at steering hand pump load sense port.*

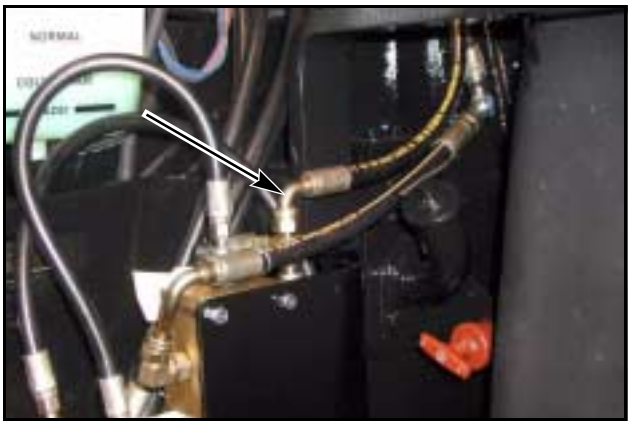


RD04K081

STEP 26

Connect the opposite end of the hose to adapter, port “A” on pilot to shift valve.

Tighten the swivel nuts at each end of the hose assembly.



RD04K082

STEP 27

Install the “Snap to Connect” tee at “P” port. Install a -8, 90 degree elbow onto the tee as shown.

RD04H213

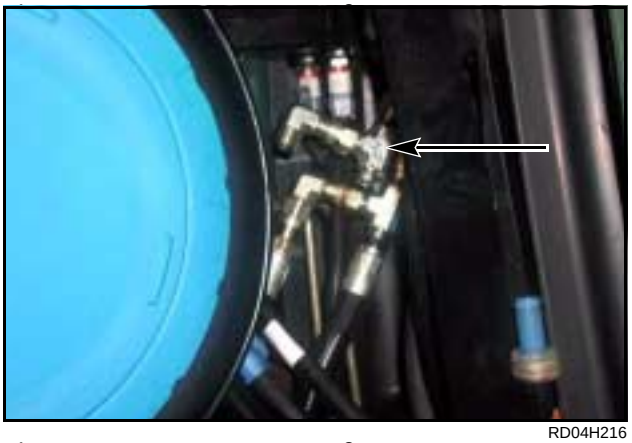
STEP 28

Install the existing “Snap to Connect” “P” port hose to end of “Snap to Connect” tee. Connect the hose end marked “P” to the 90 degree elbow.

RD04H215

STEP 29

Install the “Snap to Connect” tee at “T” port. Install a -8, 90 degree elbow onto the tee as shown.

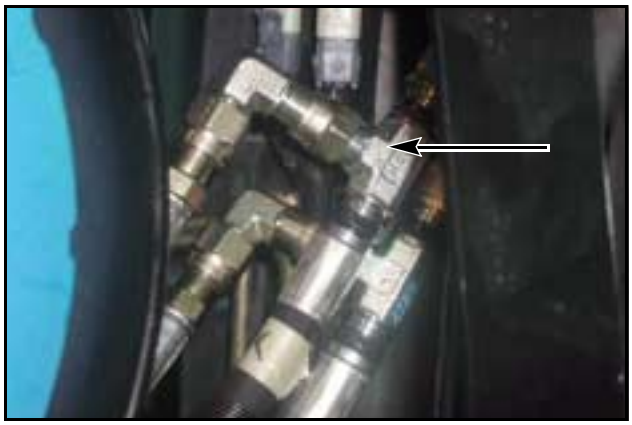


RD04H216

STEP 30

Install the existing “Snap to Connect” “T” port hose to end of “Snap to Connect” tee. Connect the hose end marked “T” to the 90 degree elbow.

Tighten the elbow and hose swivel fittings.



RD04H222

STEP 31

Install the “Snap to Connect” tee at “Right” port. Install a -8, 90 degree elbow onto the tee as shown.

RD04H229

STEP 32

Install the existing “Snap to Connect” “Right” port hose to end of “Snap to Connect” tee. Connect the hose end marked “A” to the 90 degree elbow.

Tighten the elbow and hose swivel fittings.

RD04H232

1. “A” HOSE END

STEP 33

Install the “Snap to Connect” tee at “Left” port. Install a -8, 90 degree elbow onto the tee as shown.

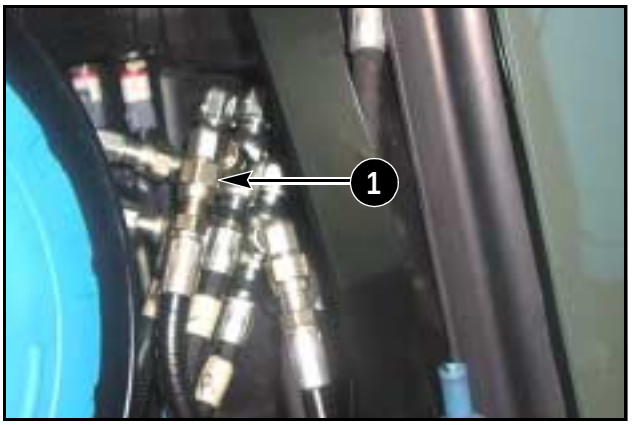
RD04H233

STEP 34

Install the existing “Snap to Connect” “Left” port hose to end of “Snap to Connect” tee. Connect the hose end marked “B” to the 90 degree elbow.

Tighten the elbow and hose swivel fittings.

Check to make sure the hose assemblies at steering hand pump are not rubbing on adjacent fittings.



RD04H236

1. “B” HOSE END

STEP 35

Remove the protective caps from solenoid connections on valve. Connect the gray connector (right) to rearward solenoid on valve. Black connector (left) to forward solenoid on valve.

RD04K090

STEP 36

Install the guard with the hardware provided.

RD04K083

STEP 37

Install the steering valve/steering sensor harness. Start at the front axle where the steering angle sensor will be located. Route the cable back under the tractor over to the steering valve / transducer, then under the cab and back into the rear of the cab to the controller mounting area. Make all the valve/ transducer connections. Secure the harness with tie straps along the harness route.

STEP 38

Replace the air cleaner cover. Replace engine side panel/door.

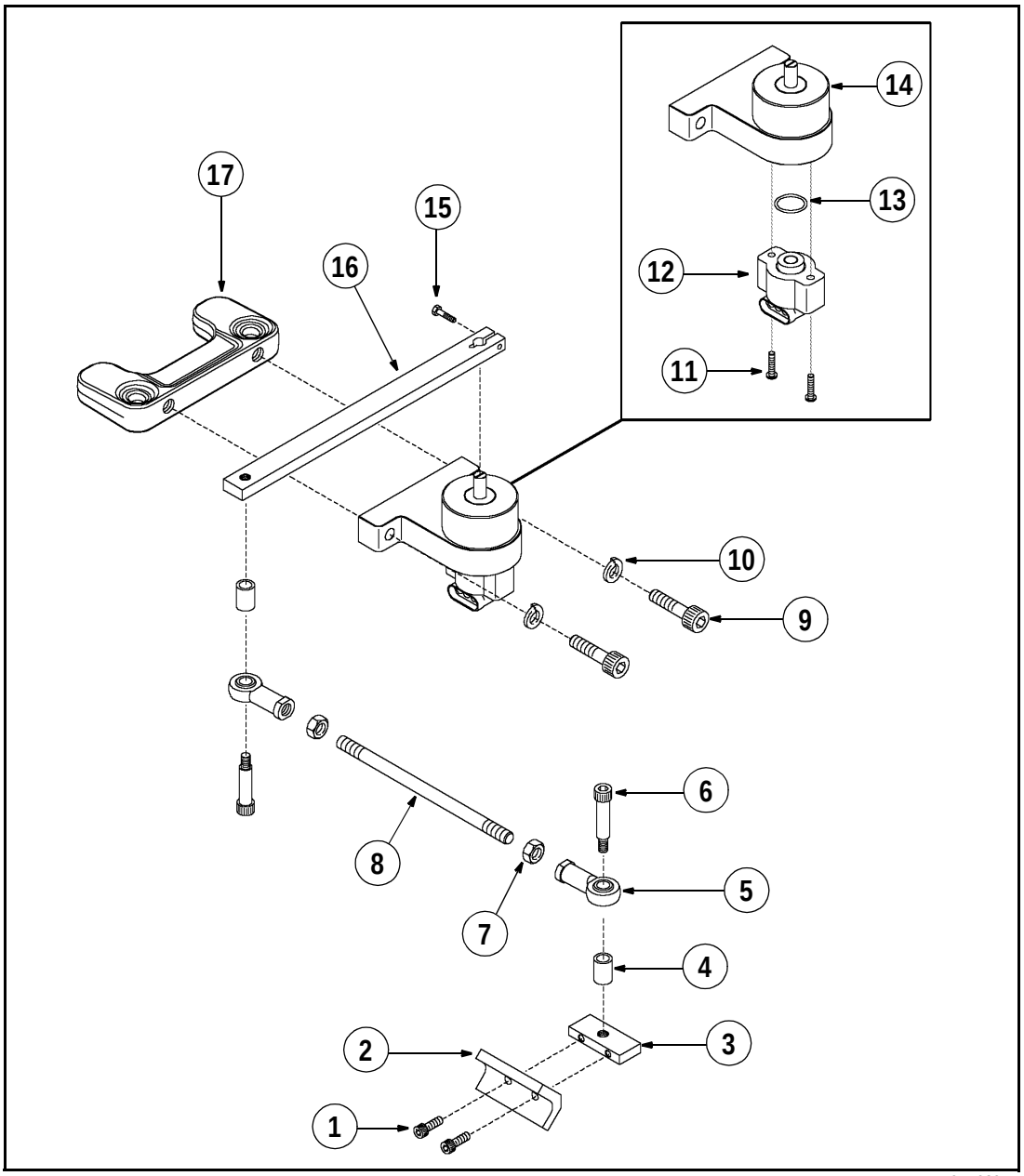
STEP 39

Be sure that all hydraulic connections are tight.

Check the machine hydraulic oil level and add oil as needed.

Re-connect the battery and start the machine to check for hydraulic leaks. Disconnect the battery after the leak check has been performed.

ANGLE SENSOR INSTALLATION



RI04K029

1. SOCKET HEAD BOLTS, 10-24 X 1/2
2. TIE ROD ANGLE BRACKET
3. TIE ROD FLAT BRACKET
4. SHOULDER BOLT SPACER
5. ROD END
6. SHOULDER BOLT, 5/16 X 1
7. JAM NUT
8. CONNECTING LINK
9. SOCKET HEAD BOLT, 3/8 X 1-3/4
10. LOCK WASHER, 3/8
11. SLOTTED SCREW, 10-24 X 1/4
12. ROTARY POTENTIOMETER
13. O-RING
14. ANGLE SENSOR
15. SOCKET HEAD BOLT, 8-32 X 1/2
16. PRIMARY LINK
17. ANGLE SENSOR BRACKET

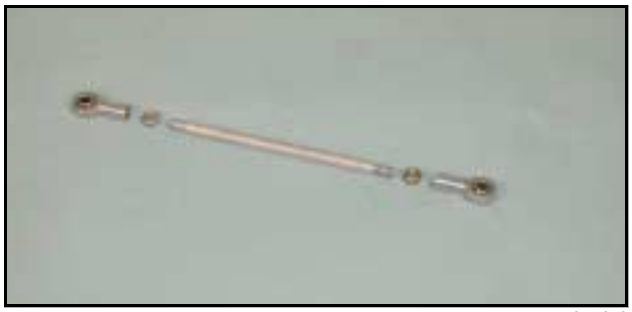
NOTE: *Be sure wheels are straight ahead and do not move wheels or start equipment unless otherwise instructed.*

NOTE: *Be sure battery is disconnected before continuing.*

NOTE: *Place all components on a clean work surface.*

STEP 1

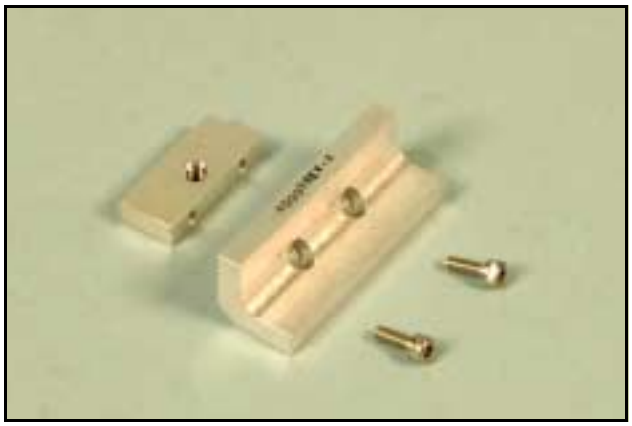
Install a jam nut and rod joint end onto each end of the hydraulic cylinder connecting link. Leave jam nuts loose.



RD04H649

STEP 2

Install the connecting link flat bracket onto the connecting link angle bracket using two 10-24 x 1/2 socket head bolts.



RD04F147

STEP 3

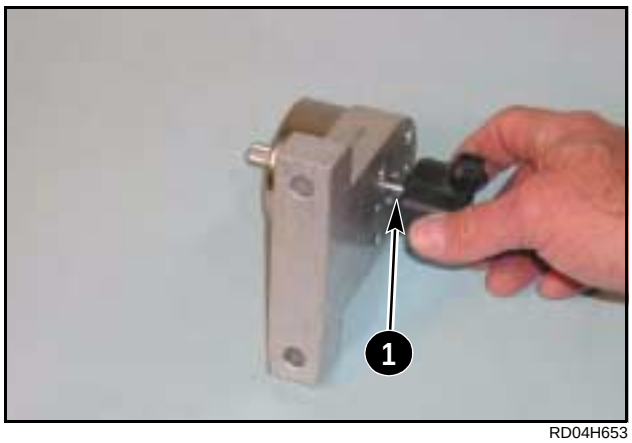
Install the angle/flat bracket assembly onto the connecting link using a spacer and shoulder bolt. Leave shoulder bolt 1/4 turn loose.

RD04H650

STEP 4

Select the two 10-24 screws, rotary potentiometer, O-ring and angle sensor.

Install the O-ring onto the rotary potentiometer. Align and install the rotary potentiometer onto the angle sensor.



RD04H653

1. O-RING

STEP 5

Apply a small amount of LOCTITE® Threadlocker 242 (supplied in kit) to each 10-24 screw and secure the rotary potentiometer to the angle sensor.

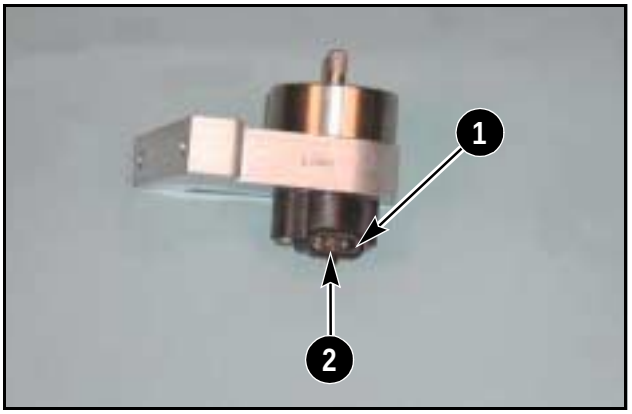
RD04H654

STEP 6

NOTE: *Failure to perform this step could result in damage to the steering sensor.*

The angle sensor shaft will only turn 180 degrees. Do not force the shaft to turn. Find the midpoint of the shaft's travel (90 degrees) and permanently mark the shaft and angle sensor body. These marks will be used later during the installation procedure.

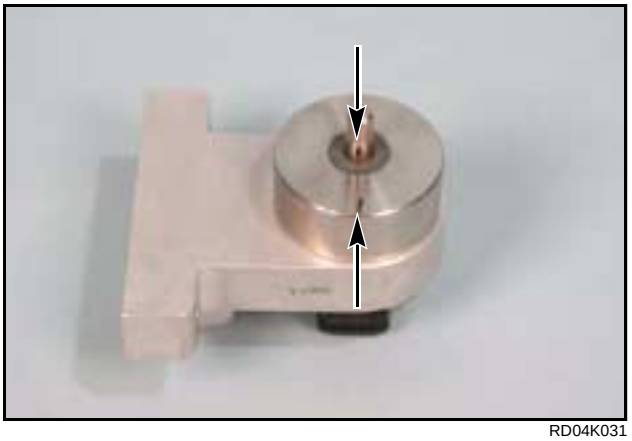
If a multimeter is available, center sensor using this step. Place a multimeter on the right pin (1) and center pin (2) of the steering sensor as shown. Record the current resistance. Turn the knurled end of the sensor all the way in the direction it will allow you to turn. Record this resistance. Average the two resistances to determine the midpoint of the sensor.



RD04H656

Turn the sensor until the midpoint resistance is displayed on the multimeter, then mark the position of the sensor.

NOTE: *The angle sensor assembly shaft is spring loaded and will slowly turn back to the zero degree position.*



RD04K031

STEP 7

Remove the existing right side oscillation stop.

RD04K020

STEP 8

Install the supplied oscillation stop.

RD04K021

STEP 9

Bolt the angle sensor assembly to the oscillation stop using the hardware provided.

RD04K022

STEP 10

Align the marks made in Step 6, and attach the primary link to the knurled end of the sensor, so it is parallel with the tractor. Install and tighten the lock bolt in the primary link.

RD04K039

STEP 11

Bolt the angle bracket and connecting link assembly to the primary link.

RD04K024

STEP 12

Clamp the angle bracket to the tie rod.

RD04K026

STEP 13

Plug the connector from the steering valve/steering sensor harness into the steering sensor. Secure the harness with tie straps along the way so it will not be damaged by heat or moving components. Leave enough room to allow the harness to move as the machine is moved.

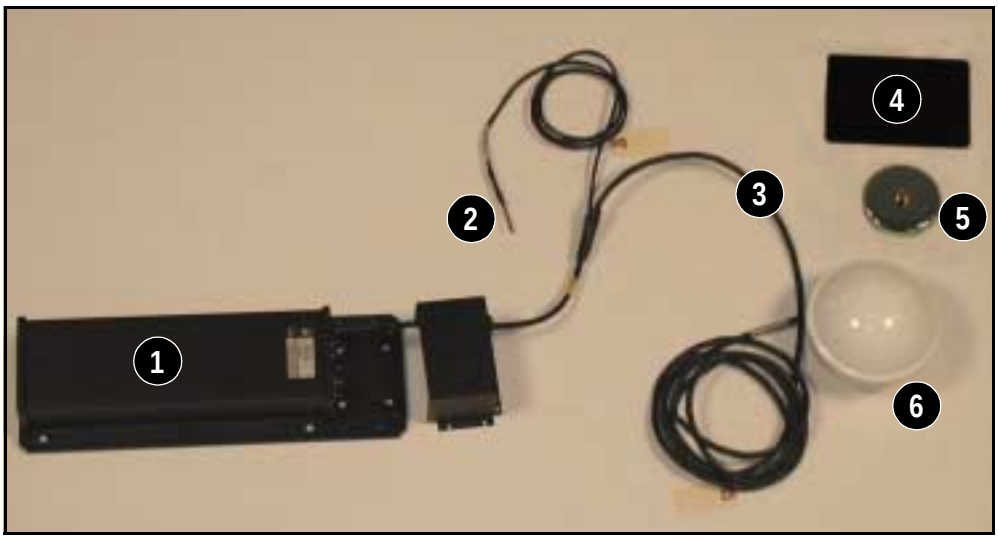
STEP 14

If adjustment is required after assembly, it may be necessary to spread the end of the primary link to turn the angle sensor. This will be done with the sensor on the equipment.

RD04K028

ANTENNA/RECEIVER INSTALLATIONS

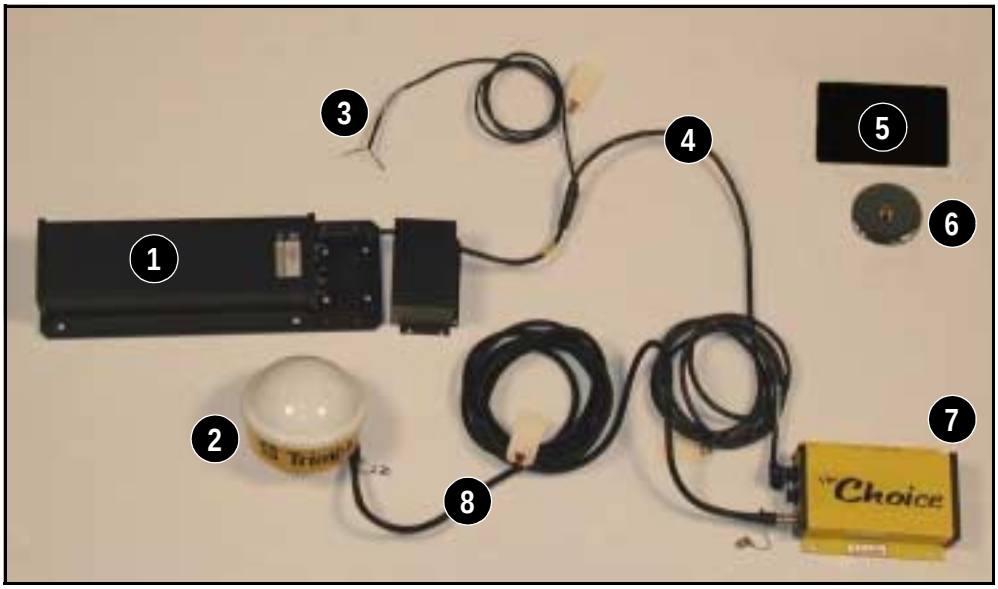
AgGPS 114 or AgGPS 132



RD04F281

AgGPS 114 RECEIVER

1. CONTROLLER
2. POWER/GROUND CONNECTIONS
3. ANTENNA/RECEIVER CABLE
4. MAGNETIC MOUNT PLATE
5. MAGNETIC MOUNT
6. AgGPS 114 ANTENNA/RECEIVER



RD04F282

AgGPS 132 RECEIVER

1. CONTROLLER
2. AgGPS 132 ANTENNA
3. POWER/GROUND CONNECTIONS
4. RECEIVER CABLE
5. MAGNETIC MOUNT PLATE
6. MAGNETIC MOUNT
7. AgGPS 132 RECEIVER
8. ANTENNA CABLE

STEP 1

Measure from side to side on cab roof. Locate and mark the center point of the cab roof. Clean the area around the center of the cab roof.

RD04F131

STEP 2

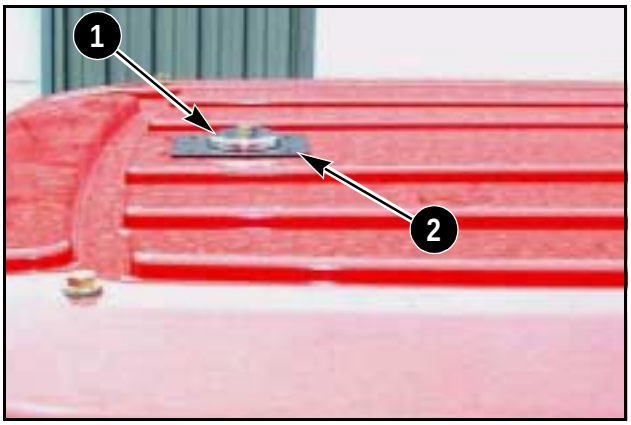
Remove backing on adhesive strips of mounting plate. Mount plate on center point mark.

NOTE: *Antenna may be placed anywhere between the front and rear of the cab in an accessible location, however, it must be centered left to right.*

RD04F132

STEP 3

Attach magnetic mount (1) to plate. Mount in the center of the plate using the four holes (2) in the plate as a guide.



RD04F133

STEP 4

Install antenna on the magnetic mount.

RD04F134

STEP 5 AgGPS 114 Only

Attach antenna/receiver cable and route cable toward the “C” post at the right rear of the cab. Secure cable to grab rail with ties. Route cable into cab through hole in rear window or cab floor. Leave power and ground wires from antenna cable near the base of the right armrest console. Connections will be made later. Route remaining cable toward rear of operator’s seat base.

RD04F135

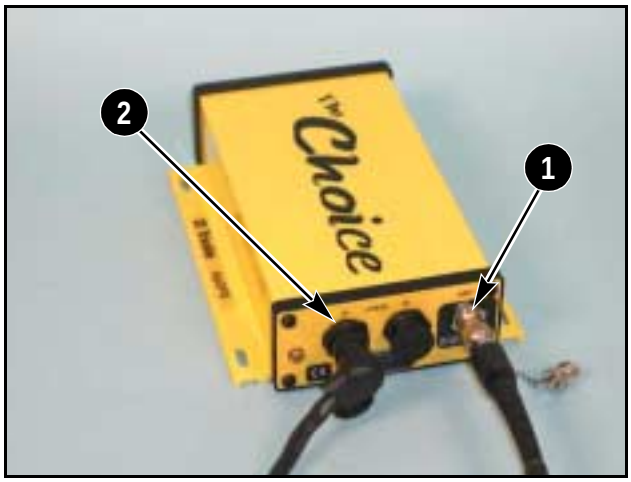
STEP 6 AgGPS 132 Only

Attach antenna/receiver cable and route cable toward the “C” post at the right rear of the cab. Secure cable along the way. Route cable into cab through hole in rear window or cab floor. Route remaining cable toward rear of operator’s seat base. Connections will be made later.

The AgGPS 132 receiver may be mounted anywhere in the cab in a convenient location.

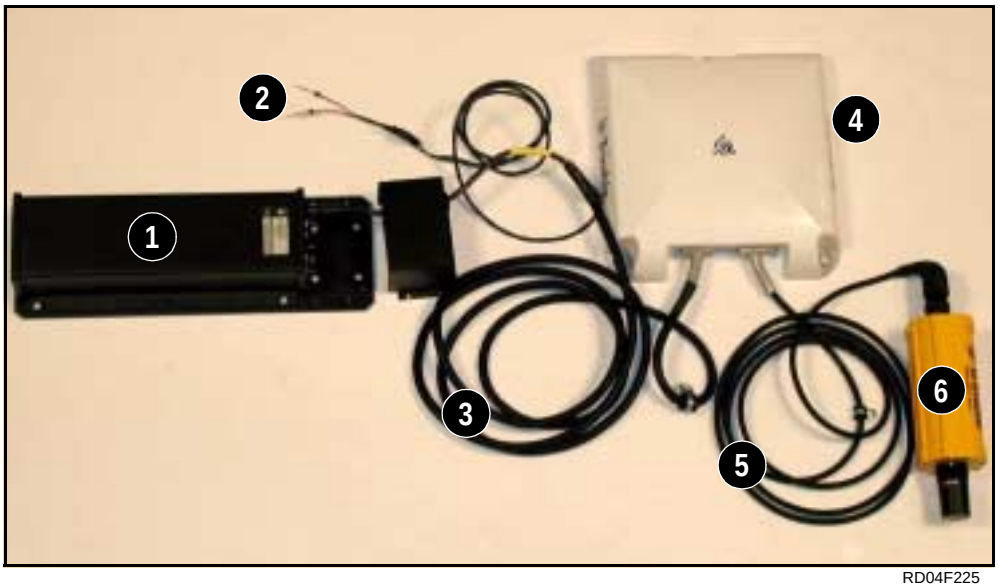
RD04F135

Route antenna cable (1) and connect to receiver. Connect controller cable to cavity "A" (2) of the receiver. Leave power and ground wires on controller cable near the base of the right control console. Route remaining cable toward rear of operator’s seat base. Connections will be made later.



RD04G130

AgGPS 252 Receiver and RTK Radio (If Equipped)



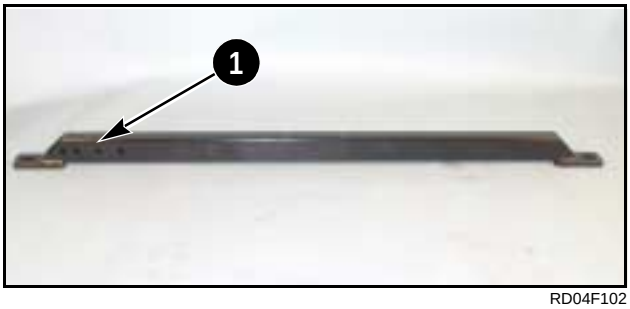
RD04F225

AgGPS 252 RECEIVER WITH RTK RADIO (IF EQUIPPED)

1. CONTROLLER
2. POWER/GROUND CONNECTIONS
3. ANTENNA/RECEIVER CABLE
4. AgGPS 252 ANTENNA/RECEIVER
5. RTK RADIO CABLE (IF EQUIPPED)
6. RTK RADIO (IF EQUIPPED)

STEP 1

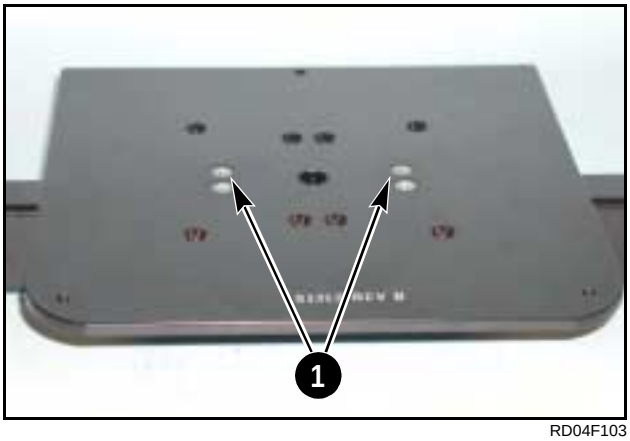
Place mounting bar on a clean, level surface. Place mounting bar so the four side holes (1) are on your left.



RD04F102

STEP 2

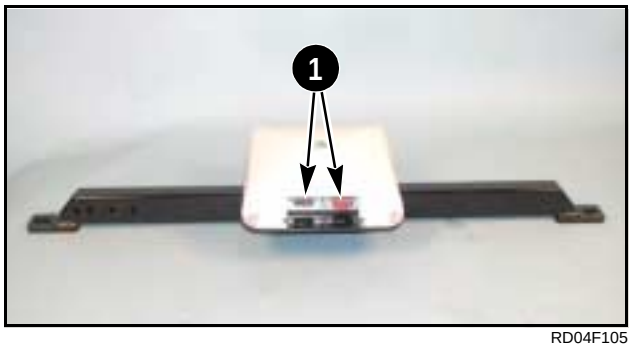
Attach the receiver mounting bracket to the top of bar using the four 1/4-20 x 1/2 flat head screws (1). Curved edge of mounting bracket should be facing you.



RD04F103

STEP 3

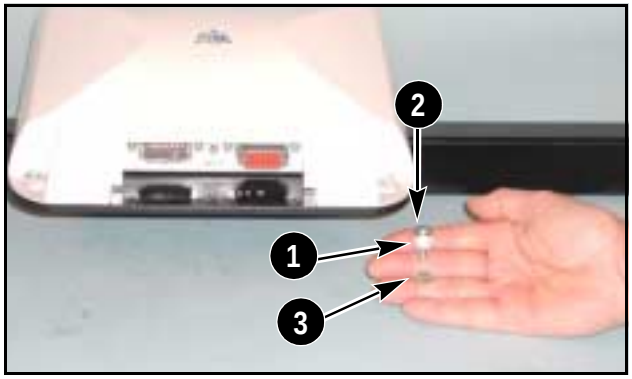
Position the AgGPS 252 receiver on the bracket with the connector cavities (1) facing you.



RD04F105

STEP 4

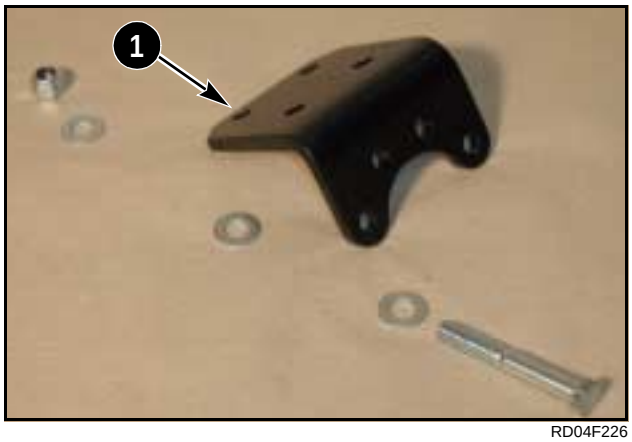
Install the nylon shoulder washers (1), 1/4 x 7/8 hex bolts (2) and 1/4 lock nuts (3) through the receiver and mounting bracket.



RD04F106

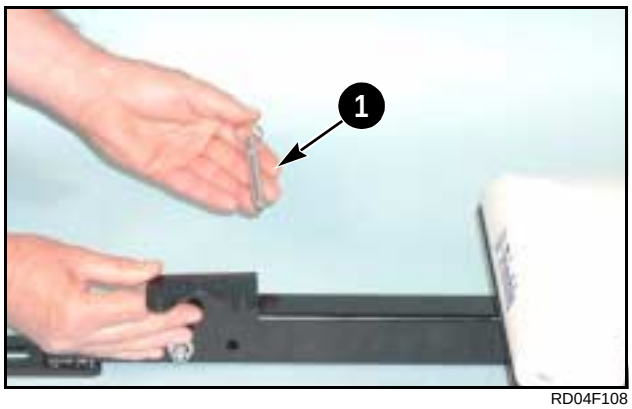
STEP 5 If Equipped With RTK Radio

Install the RTK radio mount bracket. Place a flat washer onto the 3/8 x 2-1/2 hex bolt. Install the bolt through the back of the mounting bar in the third hole from your left. Install another washer. Place the radio mounting bracket on the bolt through the hole shown. Install another washer and lock nut.



RD04F226

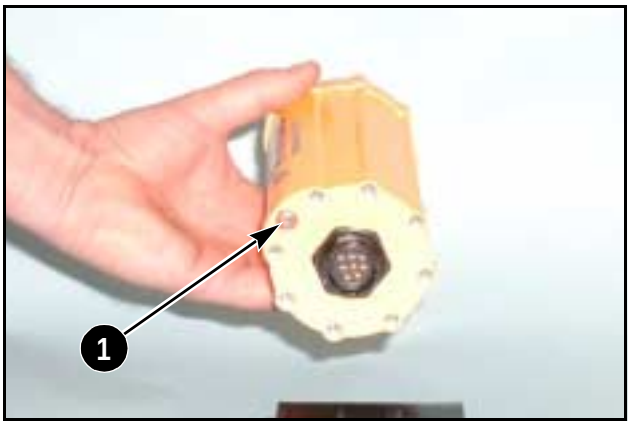
Install ring grip retaining pin (1) through back side of bracket next to bolt.



RD04F108

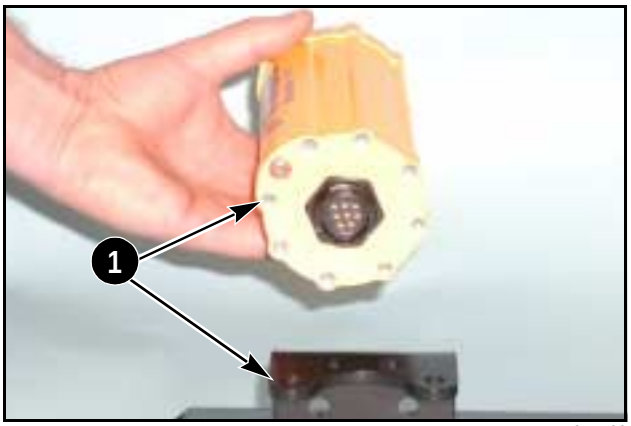
Install radio on mount bracket with connector cavity on bottom.

NOTE: *Radio must be mounted so the LED (1) on the bottom of the radio is visible.*



RD04F109

Position radio so the LED is as close to mounting bracket as possible without covering LED. Align hole on radio with hole on bracket as shown (1).



RD04F109

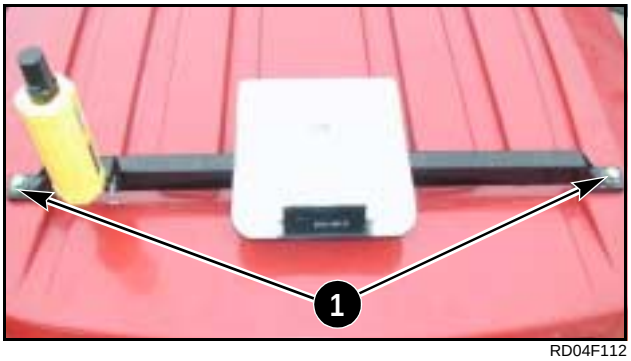
Install two 5/16 x 5/8 socket head bolts and washers into mount bracket and radio.

NOTE: *Not all bolts provided for radio will be used.*

RD04F110

STEP 6

Remove two bolts and washers (1) at rear of cab roof. Place mount bracket assembly over existing holes. Re-use existing cab bolts and install bolts onto bracket. Connector cavities should face the rear of the cab.

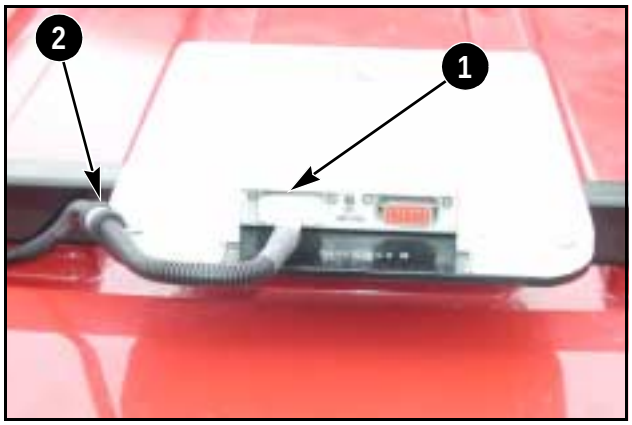


RD04F112

STEP 7

Connect cable from cab controller into cavity "A" (1) of the AgGPS 252 receiver. Bolt cable clamp (2) to left side of receiver using existing bolt.

Route cable along roof bracket, toward right side of cab. Place cable along “C” post of cab through opening in the rear window or cab floor. Place ties along cable to secure.



RD04F113

STEP 8

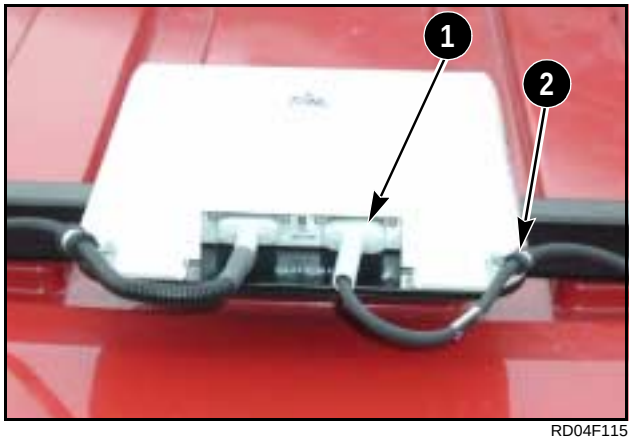
Leave power and ground wires of antenna cable near the base of the right control console. Route remaining cable toward rear of seat bottom. Connections will be made later.

STEP 9 If Equipped With RTK Radio

Connect cable to RTK radio. Rotate the connector until it seats, then turn lock ring into place.

RD04F114

Place opposite connector end of radio cable into cavity “B” (1) of the AgGPS 252 receiver. Remove plug from cavity “B”, then install connector. Bolt cable clamp (2) to receiver using the existing bolt.



RD04F115

Coil excess cable, tie cable together and secure to cab or roof bracket.

RD04F116

Radio mount bracket may be repositioned for clearance while traveling. Pull pin on mount bracket, push radio down toward left side of cab. Reinstall pin through mount brackets.

RD04F117

DISPLAY INSTALLATION

AgGPS 21A Lightbar Display

STEP 1

Use the hardware provided to secure the lightbar to the suction cup mount. The suction cup mount will adhere to any smooth clean surface. Press the suction pump button (1) several times to secure the suction cup mount.

RD04G031

AgGPS 170 Display

STEP 1

The Ag170 display will be mounted in the cab with a bar mount ram mount. Decide where in the cab it will be mounted.

RD04F092

STEP 2

Assemble the display mounting bracket onto the ram mount with the hardware provided.

RD04F088

STEP 3

Place a spacer over each threaded hole on back of display.

RD04F089

STEP 4

Install the display mount assembly over the spacers. Secure the mount with hardware provided.

The mount is being secured so that with display facing you, the mount is on the left side. Install the display mount bracket according to where you will be mounting it in cab.

RD04F090

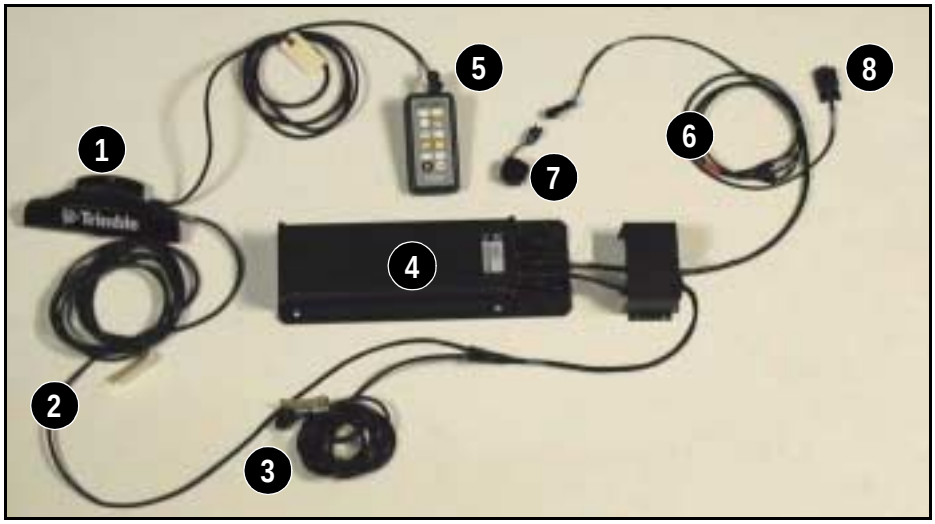
STEP 5

Install the bar clamp mount to the ram mount with hardware provided. The display can now be mounted in cab.

RD04F091

DISPLAY CONNECTIONS

AgGPS 21A Lightbar Only System Cable Layout



RD04F276

AgGPS 21A LIGHTBAR ONLY SYSTEM

1. LIGHTBAR DISPLAY
2. LIGHTBAR HARNESS
3. RDL CONNECTOR (USED ONLY FOR CONTROLLER SERVICING)
4. CONTROLLER
5. BUTTON BOX
6. SONALERT ALARM HARNESS
7. SONALERT ALARM
8. FIELD COMPUTER DISPLAY (OPTIONAL)

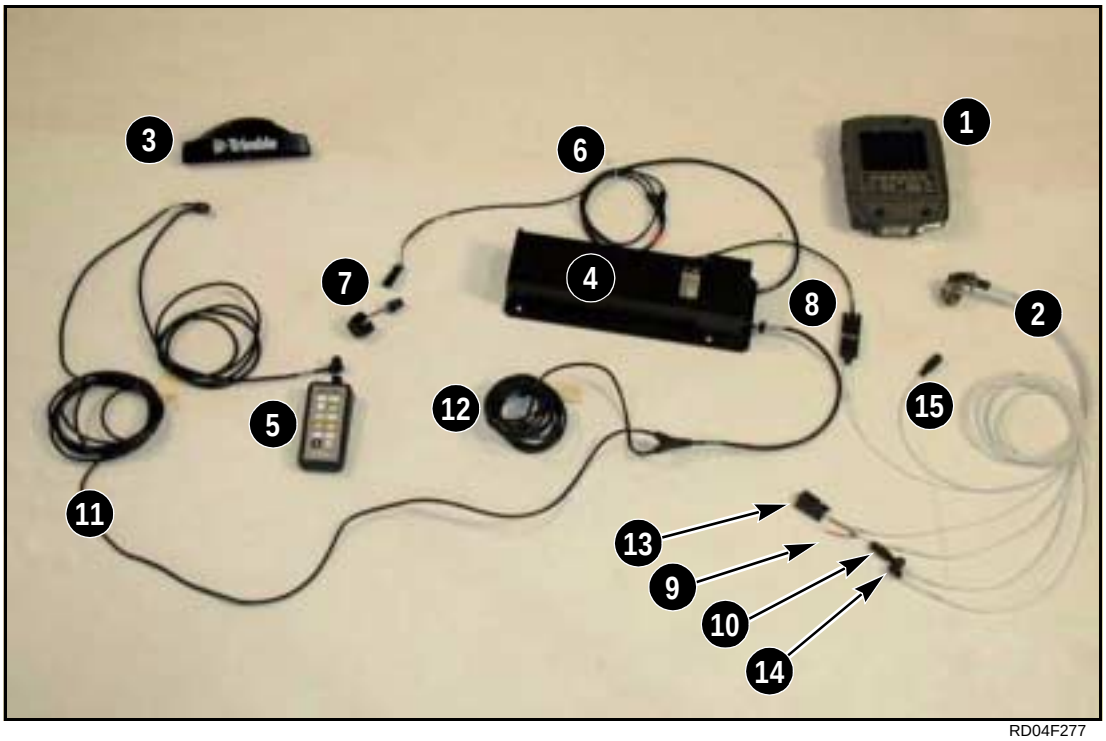
STEP 1

Connect the lightbar harness to the lightbar and button box. Place the RDL connector in an accessible location to be used for servicing the system. Route the controller connector toward the front of the seat at the floor. Controller connections will be made later.

STEP 2

Determine a position to install the Sonalert alarm. This position should be within audible range of the operator so the alarm can be heard when activated. You can have the alarm lay loose or drill a hole in an unobstructed trim panel and mount the alarm. Connect the Sonalert alarm harness to the alarm. Route the controller connector toward the front of the seat at the floor. Controller connections will be made later.

AgGPS170 Display System Cable Layout



RD04F277

Ag170 DISPLAY SYSTEM

1. Ag170 DISPLAY
2. DISPLAY HARNESS
3. LIGHTBAR DISPLAY (OPTIONAL)
4. CONTROLLER
5. BUTTON BOX (OPTIONAL)
6. SONALERT ALARM HARNESS
7. SONALERT ALARM
8. DISPLAY CONNECTION
9. AgGPS 170 POWER CONNECTION
10. SWITCH/ALARM CONNECTOR (NOT USED THIS APPLICATION)
11. LIGHTBAR HARNESS (OPTIONAL)
12. RDL CONNECTOR (USED ONLY FOR CONTROLLER SERVICING)
13. COMPUTER CONNECTION
14. LIGHTBAR CONNECTION (NOT USED THIS APPLICATION)
15. BUTTON BOX CONNECTION (NOT USED THIS APPLICATION)

STEP 1

Connect the Ag170 Display harness to the display, lightbar (if equipped) and button box (if equipped). Route the leads with the power connections, Sonalert alarm harness connector, computer connector and switch/alarm connector toward the right rear corner of the cab.

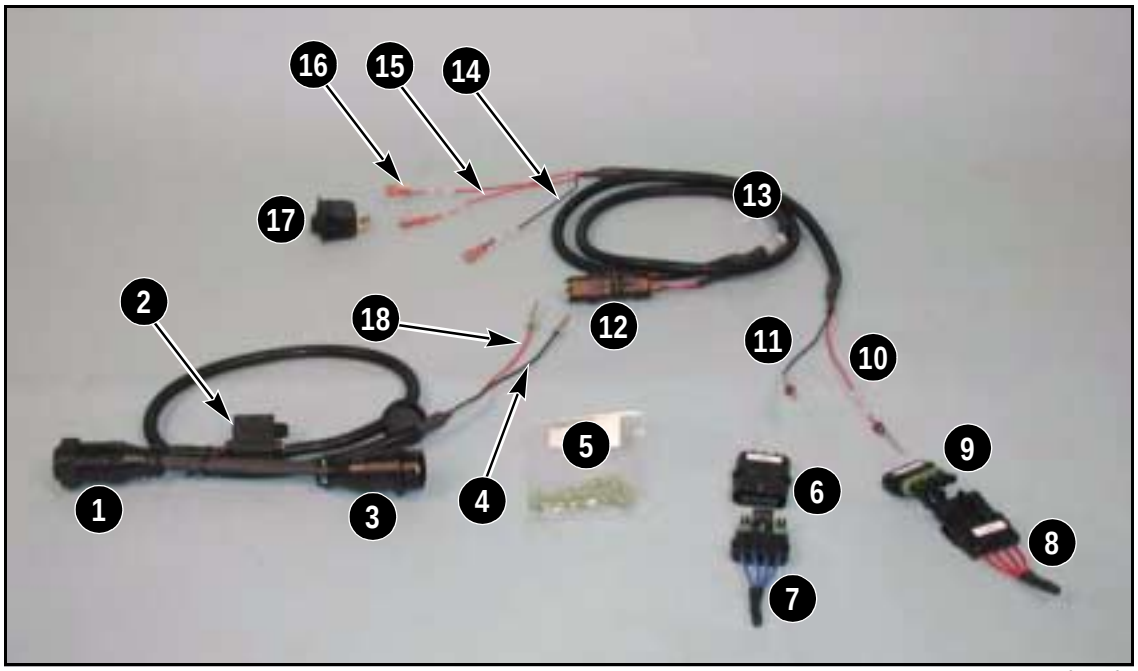
STEP 2

Route the power and ground leads into the electronics bay. Leave leads in electronics bay.

STEP 3

Determine a position to install the Sonalert alarm. This position should be within audible range of the operator so the alarm can be heard when activated. You can have the alarm lay loose or drill a hole in an unobstructed trim panel and mount the alarm. Connect the Sonalert alarm harness to the alarm. Route the controller connector toward the front of the seat at the floor. Controller connections will be made later.

POWER HARNESS INSTALLATION



RD04K156

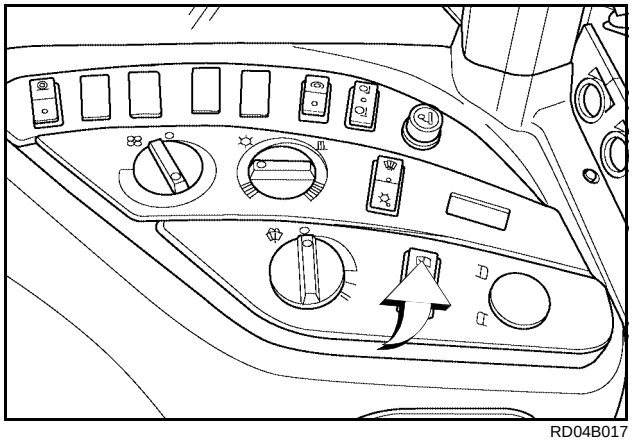
1. ACCESSORY JUMPER CABLE
2. FUSE HOLDER
3. EXTRA ACCESSORY OUTLET
4. ACCESSORY JUMPER CABLE GROUND
5. CONNECTOR CAVITY PLUGS
6. -JBK
7. -PPB
8. +PPB
9. +JBK
10. PIN A +JBK
11. PIN A -JBK
12. POWER HARNESS POWER/GROUND CONNECTOR
13. POWER HARNESS
14. GROUND WIRE TO SWITCH
15. POWER WIRE TO SWITCH
16. SWITCHED POWER WIRE
17. SWITCH
18. ACCESSORY JUMPER CABLE POWER

NOTE: *Route all harnesses, wires, and cables along routes that are free of obstructions and pinch points. Use wire ties where necessary. Connectors on all harnesses are identified by component for ease of installation. The following instructions will only give the installer the general direction to route the components. The installer will be responsible for determining the best method to conceal all routings.*

NOTE: *Make note of where any wire harness and hose tie straps were removed during disassembly so they can be properly installed during assembly.*

STEP 1

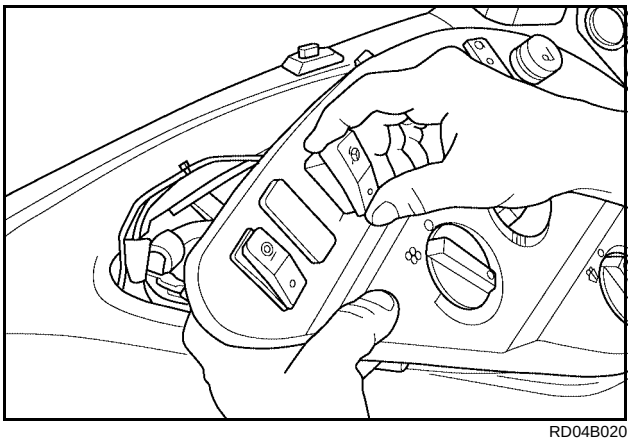
Remove the right hand fender control panel by pulling up on the edge closest to the seat. Set the control panel off to the side.



RD04B017

STEP 2

Remove the blank out plug from the third slot in the control panel. Install the switch provided in the control panel.

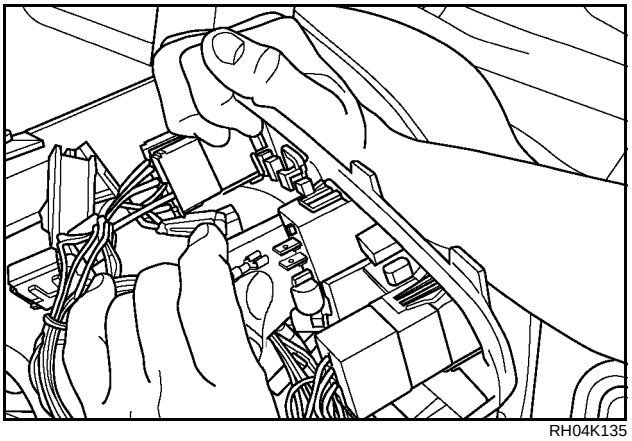


RD04B020

STEP 3

Connect the three spade terminals of the power harness on the back of the switch.

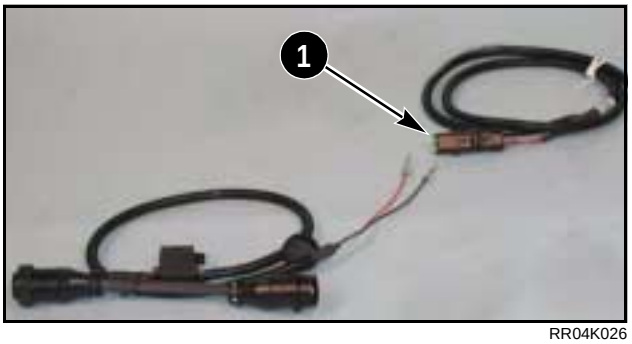
NOTE: *The wires and switch pins are labeled.*



RH04K135

STEP 4

Connect the red wire of the accessory plug jumper to the connector pin attached to the red wire on the power harness. Connect the black wire to the connector pin attached to the black wire on the power harness. Leave the connector (1) inside the console.



RR04K026

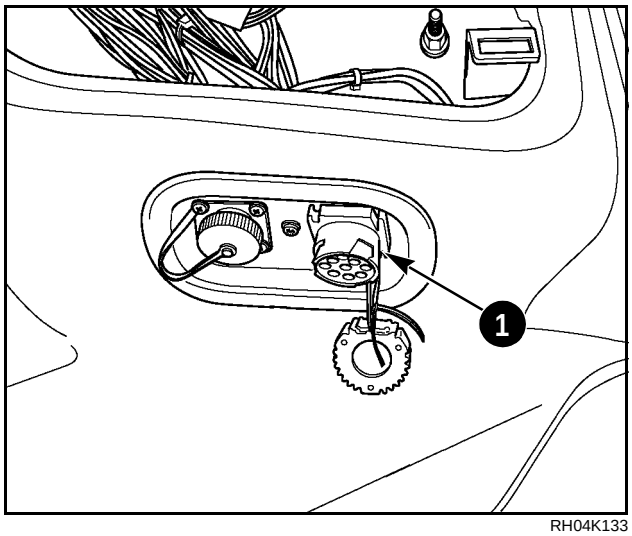
STEP 5

Remove the kick panel on the right control console. Route the accessory plug jumper cable out the base of the console toward the right rear corner of the cab.

STEP 6

Connect the accessory plug jumper cable (1) into the accessory outlet.

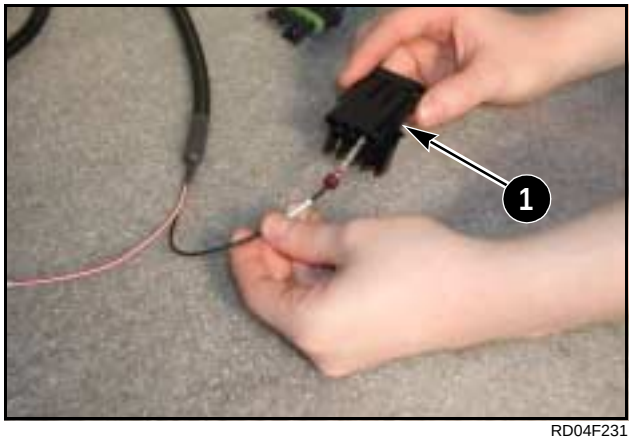
NOTE: *The extra connector on the jumper cable may be used for an accessory outlet.*



RH04K133

STEP 7

Connect the black wire of the power cable into cavity “A” of the -JPB (1) connector buss. Connect the red wire on the power cable into cavity “A” of the +JPB connector buss.

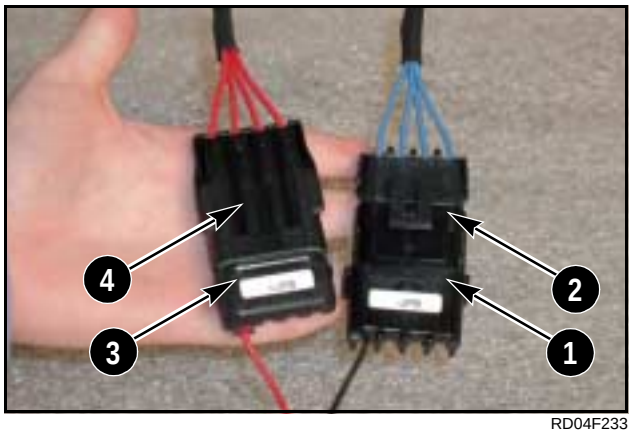


RD04F231

STEP 8

Connect -JPB (1) to -PPB (2) and +JPB (3) to +PPB (4).

NOTE: *Install a seal and pin on the end of the wires if not already installed. Extra pins and seals are located in the electrical accessory kit.*



RD04F233

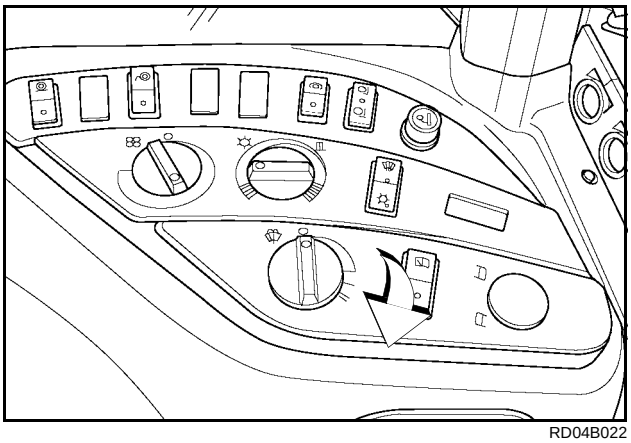
STEP 9

Connect the power and ground wires from the Lightbar and Antenna/Receiver cables to the proper buss connections. Any empty cavities should be plugged with seals from the electrical accessory kit. Leave the connectors and harness in a secure and convenient location. Replace the kick panel on the console.

STEP 10

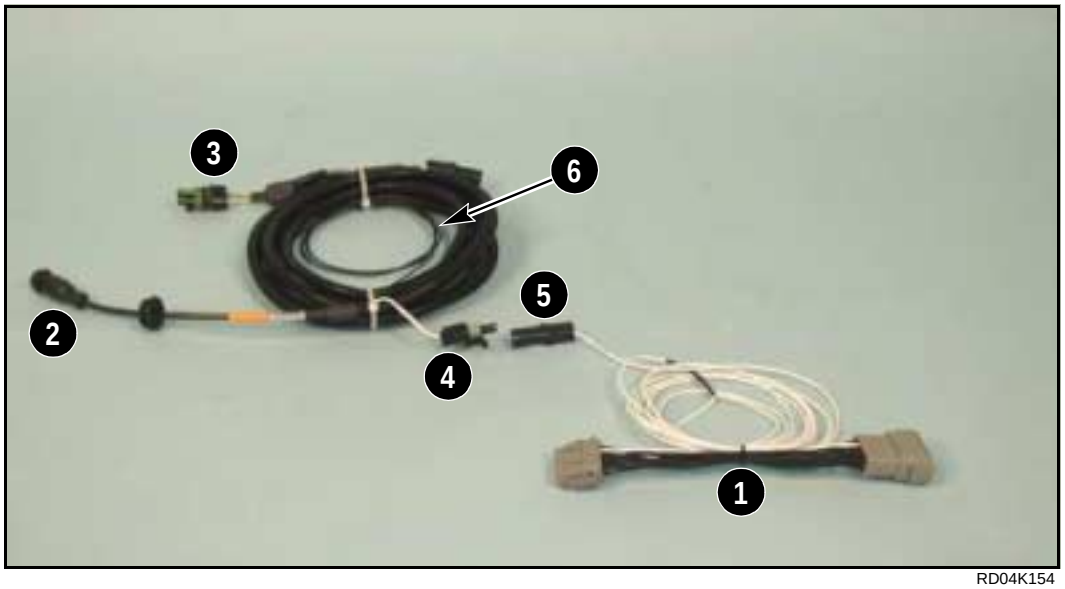
Install the right hand fender control panel by snapping back in place.

NOTE: *Make sure the retaining clips are not broken before installation. Replace as necessary.*



RD04B022

REVERSE/WHEEL SPEED HARNESS INSTALLATION

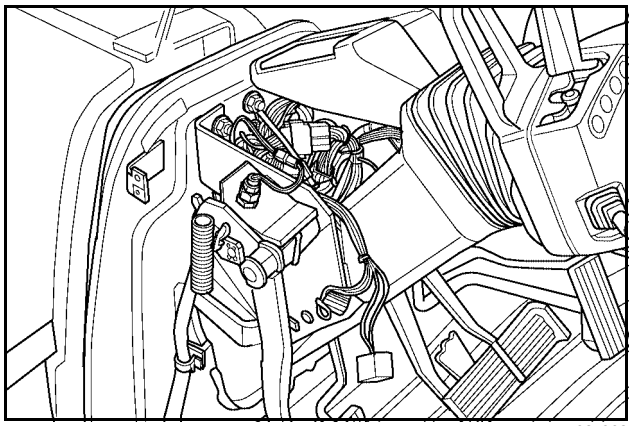


RD04K154

1. FNRP JUMPER HARNESS
2. CONTROLLER CONNECTOR
3. WHEEL SPEED JUMPER
4. FNRP MALE CONNECTOR
5. FNRP FEMALE CONNECTOR
6. REMOTE SENSE (NOT USED)

STEP 1

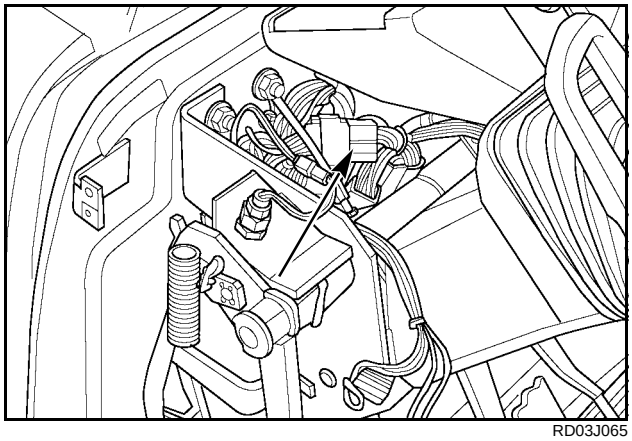
Remove the front floor mat. Remove the front steering console cover and the left venting duct.



RD03J063

STEP 2

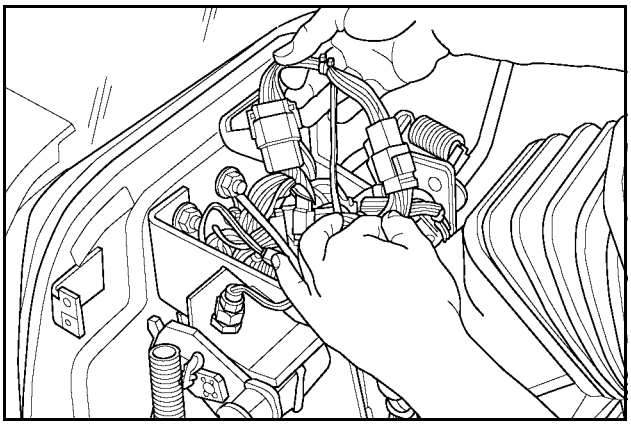
Disconnect the transmission control lever connector on the front console.



RD03J065

STEP 3

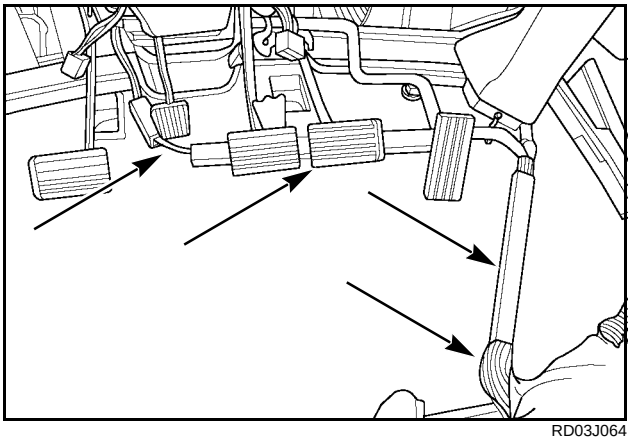
Connect the jumper harness connectors on the between the original transmission control lever connectors. Route the adapter harness down to the cab floor. Reinstall the left venting duct and the console cover.



RD03J066

STEP 4

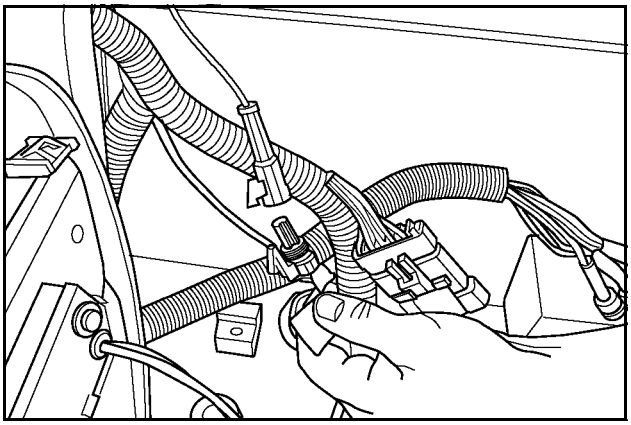
Route the jumper harness from the front console to the back cab wall through the existing channels and wire routing.



RD03J064

STEP 5

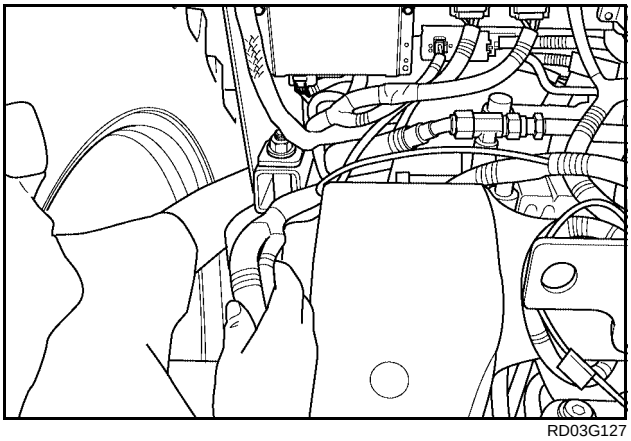
Connect the transmission control lever adapter harness to the wheel speed harness. Reinstall the front floor mat. Route the controller connector toward the rear of the operator's seat base to be connected later.



RH04K131

STEP 6

Route the leads with the speed sensor connector under the cab toward the left front of the tractor. Make sure there are no pinch points along the routing. Tie strap the harness as needed.

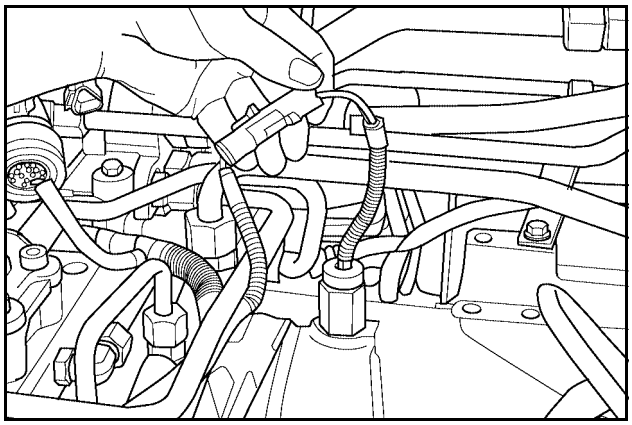


RD03G127

STEP 7

Locate the transmission speed sensor connection located on the top of the range transmission, under the HVAC box.

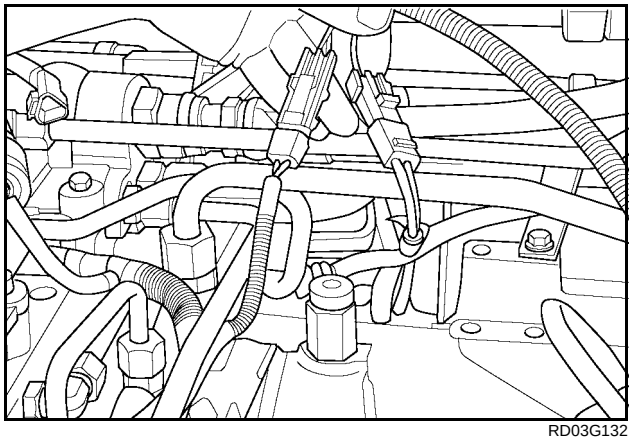
NOTE: *It may be necessary to remove the tire to gain access to the top of the range transmission. This will depend on tire size and tread setting. Make sure the tractor is supported correctly and a proper tire removing handler is utilized.*



RD03G131

STEP 8

Connect the speed sensor and jumper connector from the Autopilot harness between the speed sensor and original transmission harness. Use tie straps along the route to secure the harness. Make sure harness is not routed along any pinch points or wear type surfaces.



RD03G132

CONTROLLER INSTALLATION

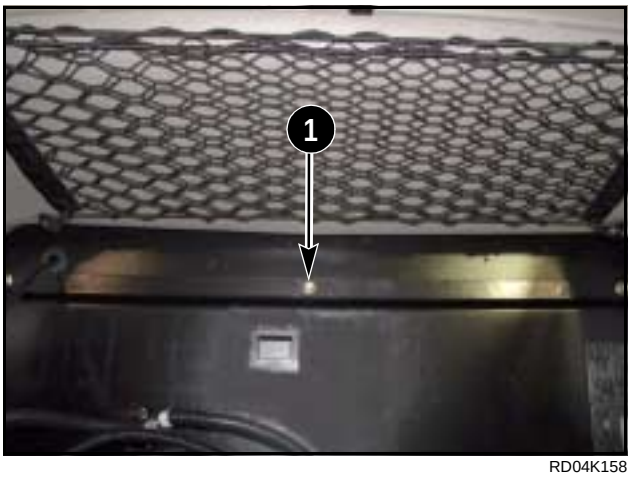
STEP 1

Remove the rubber mat behind the operator's seat.

RD04K157

STEP 2

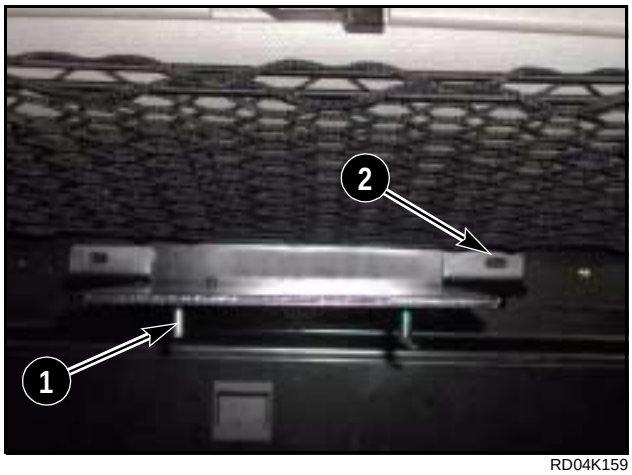
Remove the center bolt (1) in the access panel trim plate.



RD04K158

STEP 3

Place the controller mounting bracket on the cab floor behind the operator's seat with the studs (1) facing forward and slotted tabs (2) on the floor. Install the M8 bolt and washer provided in the notch at the middle of the bracket and into the access panel.



RD04K159

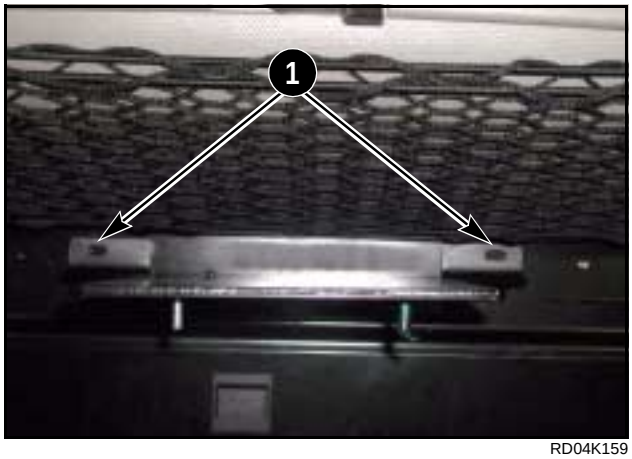
STEP 4

Use the bracket as a template and mark the two holes in the center of each slot (1). Remove the plate and drill two 5/16 inch holes through the cab floor at each marked location.

NOTE: *Make sure there are no obstructions under the cab before drilling.*

Install two 1/4-20 bolts, washers and lock nuts through the mounting bracket in the drilled holes. Replace the M8 bolt and washer in the notch of the mounting bracket and access panel. Tighten bolts.

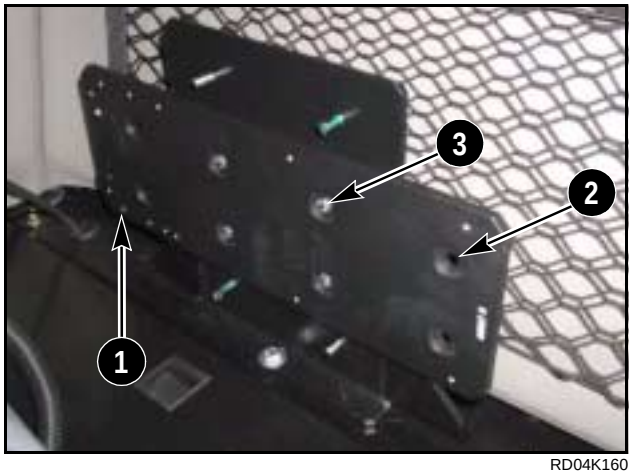
NOTE: *It may be easier to hold bolts in the cab through the rear window while tightening the nuts from outside the cab.*



RD04K159

STEP 5

Center the controller mounting plate on the front of the mounting bracket. The end of the plate with the most threaded holes (1) should be on the right side and the countersink holes (2) should be facing forward. Install four 1/4 - 20 bolts (3), washers and nuts in the mounting plate and bracket. Tighten bolts.



RD04K160

STEP 6

Attach controller with the connections toward the right hand side of the cab on the mounting plate using six M4 x 12 screws provided (1).

RD04K161

STEP 7

Install the harness connectors and grommets through the corresponding holes in the controller connector cover. Connect corresponding cables to controller connections.

NOTE: *Controller connectors and cable connectors are color-coded.*

Slide controller connector cover (1) over controller and align mounting holes in cover and mounting plate. Install cover to mounting plate using the four M4 x 12 screws provided.

RD04K163

STEP 8

Notch the rubber mat to fit around the controller mounting bracket and install the mat.

FINAL MACHINE CHECK

STEP 1

Connect the battery.

STEP 2

Start the machine and check for hydraulic leaks. Correct as needed.

STEP 3

Carefully turn the machine fully left and right and check for clearance on the angle sensor assembly. There should be no interference or binding of any of the linkage.

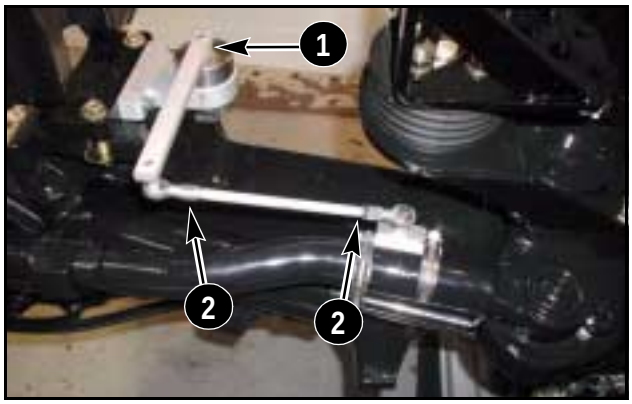
STEP 4

Connect and run the AP Toolbox for system setup and calibration. Refer to AP Toolbox manual for further instruction.

STEP 5

During the AP Toolbox steering sensor calibration, adjustment may be necessary to achieve proper voltage readings.

With the front wheels in a straight forward steering position, the AP Toolbox should record a reading between 2.49 to 2.51 volts. If not, adjust the primary link at the sensor shaft (1) or rod ends on attaching rod (for minor adjustment) (2) to obtain correct voltage.



RD04K026

1. PRIMARY LINK ADJUSTMENT
2. ROD ENDS ON ATTACHING ROD

Steering Sensor Parameters of Operation

For accuracy, the Autopilot controller requires a straight forward steering sensor voltage reading of 2.49 to 2.51. The controller also requires that the full left and full right steering reading be within .25 to 4.75 volts. If the reading falls below or goes above this voltage, the controller will record a fault. The controller also requires a 4 volt swing between full left and full right steer or the calibration will not complete. In most cases, voltage range and limits will have very limited adjustment.